PIECE FOR COMPUTER AND 4 TROMBONI

(DEATH ON THE BORDER)

ALI R. SARAL

A Thesis Submitted in Partial
Fulfillment of the Requirements
for the Degree of

MASTER OF MUSIC

Department of Music

ILLINOIS STATE UNIVERSITY

1992

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Also special thanks to Arthur Corra and John Rehm and ISU music department, Betty Plummer and ISU's International Studies Office.

The piece is dedicated to my MIDI class teacher Charles Stokes.

A.R.S.

PIECE FOR COMPUTER AND 4 TROMBONI

(DEATH ON THE BORDER)

Ali R. Saral

May 1992

Death on the Border is a piece for computer generated tape music and 4 tromboni. It is composed of 7 movements; The Prologue, The Moment, The Yearning, The Ritual, The Oblation, The Lamentation.

The tape part is generated at CCRMA (Center for Computer Research in Music and Acoustics) of Stanford University, California, on a NEXT workstation with a DSP card and the COMMON MUSIC package written in LISP computer language by Heinrich Taube.

Computer graphics techniques such as rosette, infinite regressions, tiling, tweening are used in the composition of the trombone parts.

The Prologue and the Epilogue are for tape only and all the other movements are for tape and tromboni. The durations are as follows : The Prolog 36 sec, The Moment 20 sec, The Yearning 1 min 50 sec, The Ritual 2 min 50 sec. The Oblation 2 min 5 sec, The Lamentation 2 min 30 sec, The Epilogue 40 sec. The total duration is approx. 10 min 50 sec.

The Prologue is an isorhythm based on a 12 tone series. The Moment is a single section emphasizing e as a so called tonal center. The Yearning is in AB form using the modal qualities of the 12 tone series of the first movement, with e as the modal center. The Ritual emphasizes the relations between spesific notes of the 12 tone series and causes a modal effect. It has an ABA form from the point of the use of the composition algorithm. It uses isorhythmic structures and slightly alters them through the movement. The Lamentation is an AB form. B is the reverse of A in the trombone part.

The tape part loses the meter in the second section. The Epilogue is an isorhythm based on 3 chords. built by grouping the notes of the 12 tone series in 4 voice chords.

The piece is composed as an abstraction of an East German escaping to the West.

APPROVED:

_____

Date Arthur B. Corra, Chair

_____

Date John T. Rehm

_____

Date Joaquin A. Villa

PIECE FOR COMPUTER AND 4 TROMBONI
(DEATH ON THE BORDER)

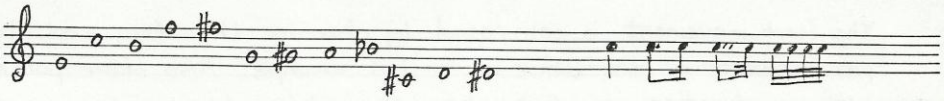
for tape and 4 trombone ①

Dedicated to my MIDI class teacher, Charles Stokes.

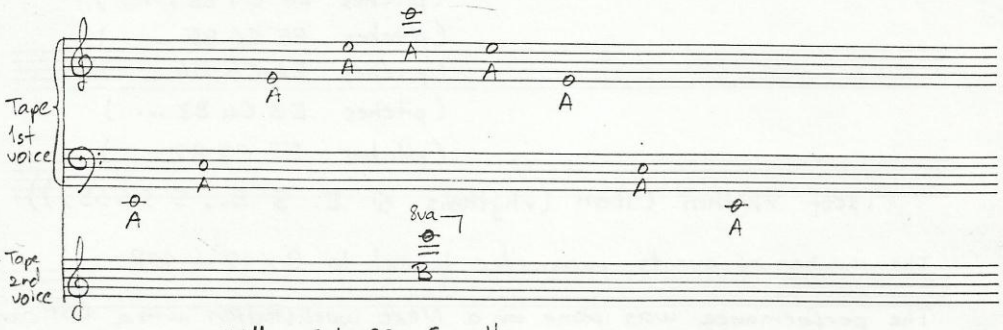
Ali Riza SARAL

I. PROLOGUE ②
(for tape only)

COLOR TALEA



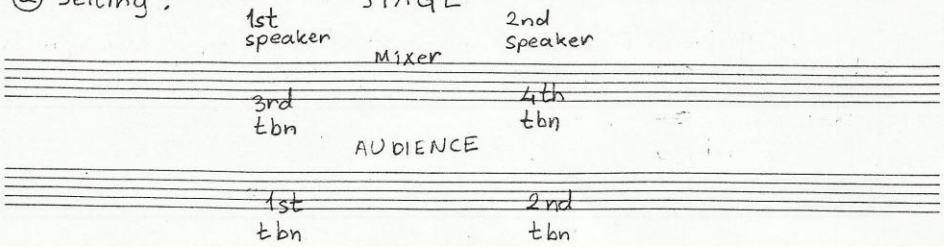
This isorhythm structure is called A, symbolizing both the color and the talea. The color is played according to the talea by the computer, A is played from different octaves. Also, an other voice plays A in a very fast tempo from a very high frequency. This is called B. The music can be symbolized as seen below:



Duration = 36" July 30, San Hose

① The tape parts have to be performed using a mixer and echo generator.

② Setting :



The tone meister is supposed to direct the performance if needed.

COMMON MUSIC (LISP) NOTATION:

CCRMA 1990 Summer Course example files are created by David A. Jaffe using COMMON MUSIC package. COMMON MUSIC package is composed of a group of Common Lisp functions. They can be found in the Common Music Manual (Preliminary Draft) by Heinrich Taube. David A. Jaffe and Heinrich Taube are both musicians doing research work at CCRMA (Center for Computer Research in Music and Acoustics), Stanford University, California.

The first movement is composed by changing the freq and rhythm parameters of the Wave1i_1.lisp example. Also other parameters such as duration, waveforms have been changed.

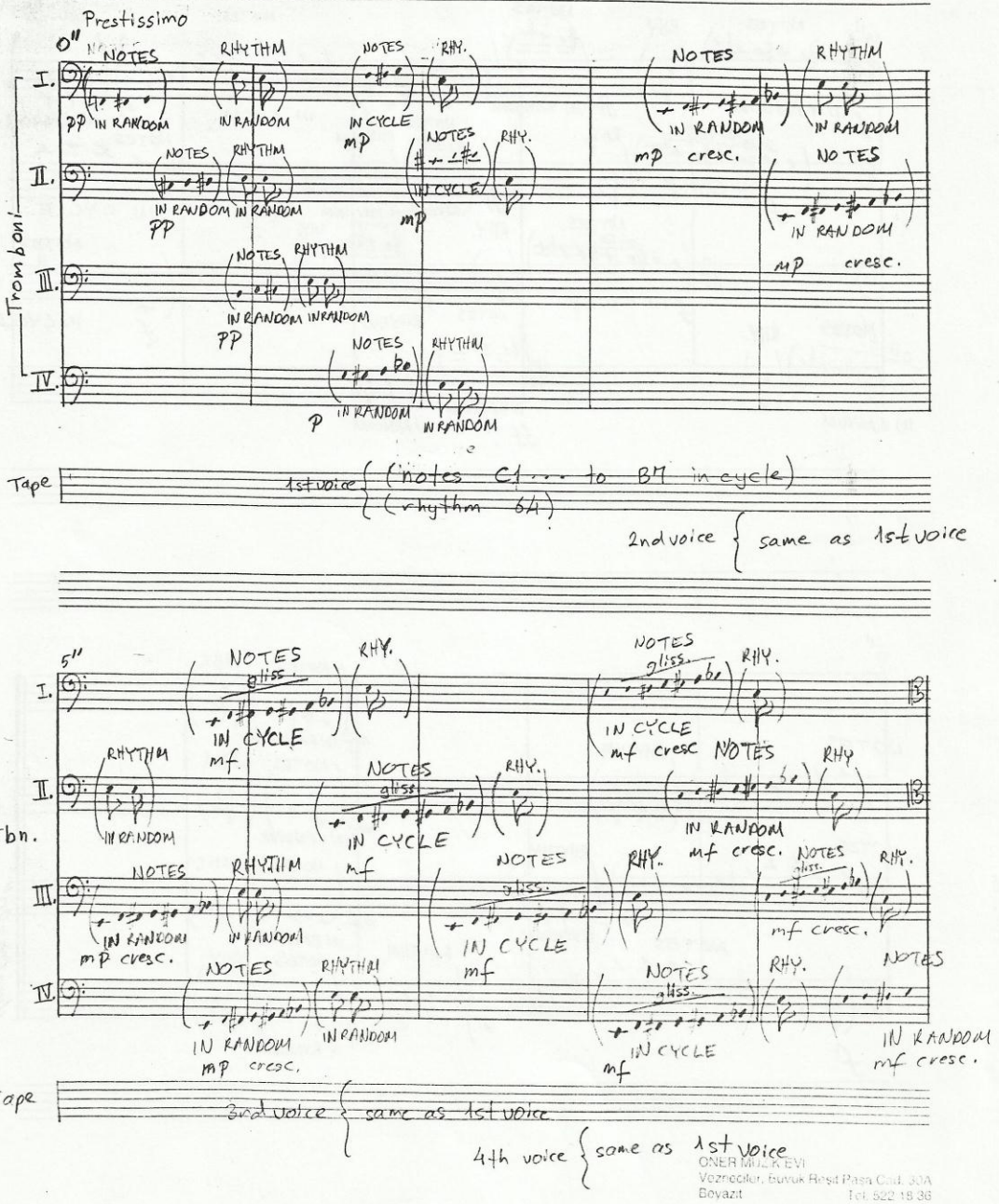
```
(setf freq (item (pitches  (pitches E2 C3 B2 .... )
                           (pitches E3 C4 B3 ... )
                           (pitches E4 C5 B4 ... )
                           (pitches E5 C6 B5 ... )
                           (pitches E6 C7 B6 ... )
                           (pitches E5 C6 B5 ... )
                           (pitches E4 C5 B4 ... )
                           (pitches E3 C4 B3 ... )
                           (pitches E2 C3 B2 ... )
(setf rhythm (item (rhythms Q E. S E.. S SSSS)))
```

The number of events parameter is set to 9 x 12 = 108.

The performance was done on a Next workstation with a DSP card.

II.

THE MOMENT



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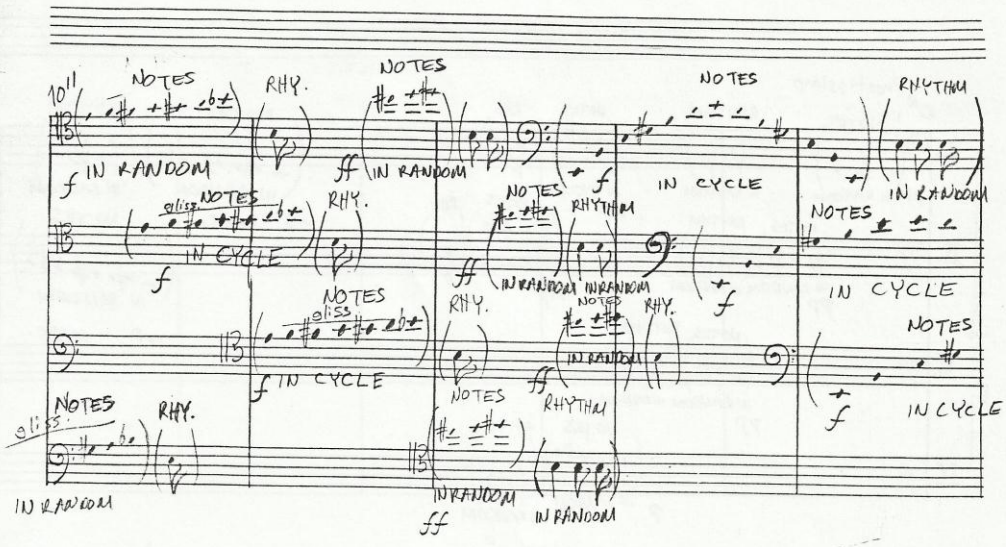
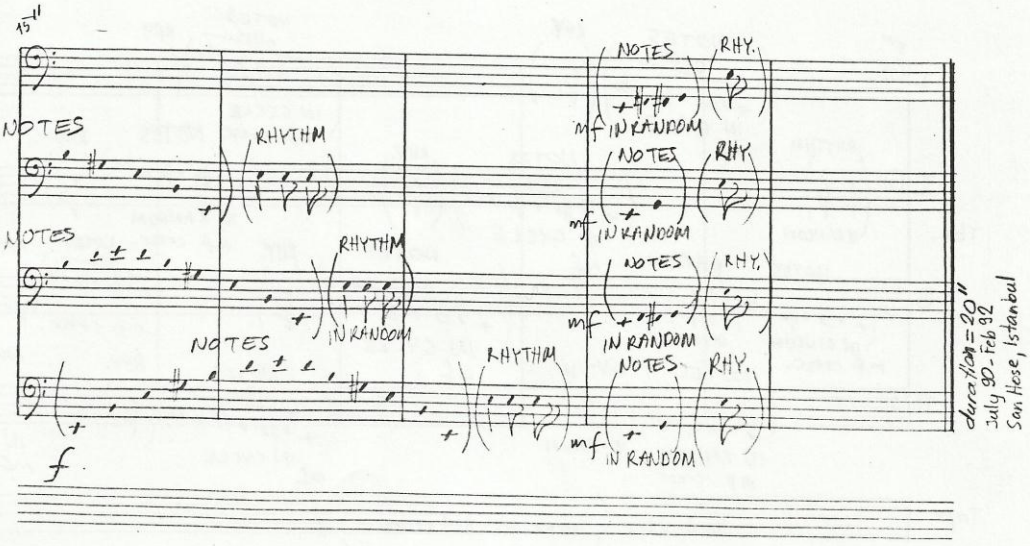
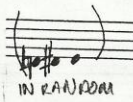
Beyazıt Tel: 522 18 36

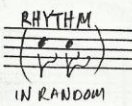

NOTES
RHY.
IN RANDOM
IN CYCLE
RHYTHM
gliss.


NOTES
RHYTHM
RHY.
IN RANDOM
mf
duration = 20"
July 90 - Feb 92
San Hese, Istanbul

(1) NOTES indicates that those notes have to be played randomly according to the rhythm pattern that is given next to it.



(2) RHYTHM indicates that the notes that are indicated before should be with either eight or sixteenth values which are chosen randomly.



(3) Unless indicated (by rests) the players have to continue playing the given structure until the next one.

(4) The density of the texture is left to the choice of the performers' taste and physical ability. This movement is supposed to have a blasting effect.

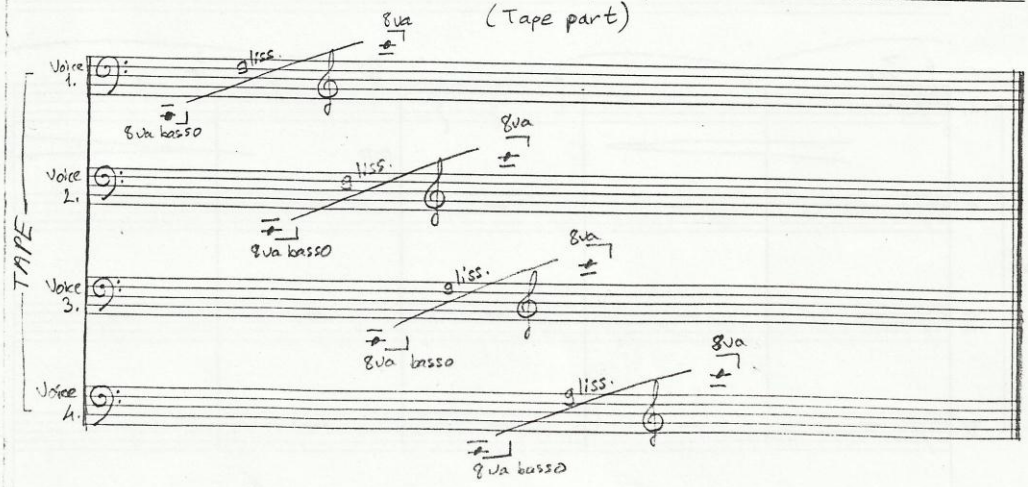
(5) The bar lines indicate the absolute time in seconds.

(6) The notation of the trombone parts are adopted from the COMMON MUSIC notation of Heinrich Taube of CCRMA.

II.

THE MOMENT

(Tape part)



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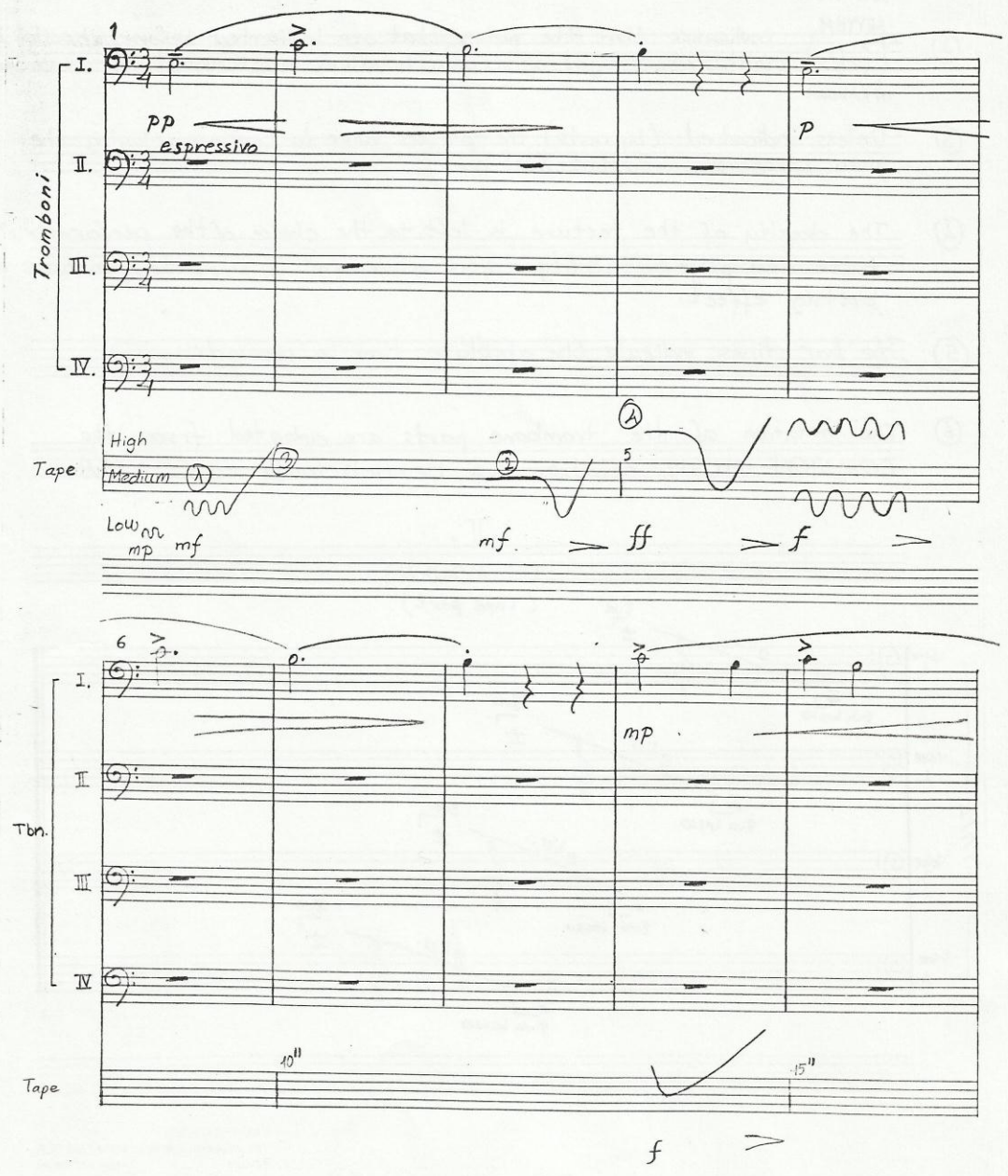
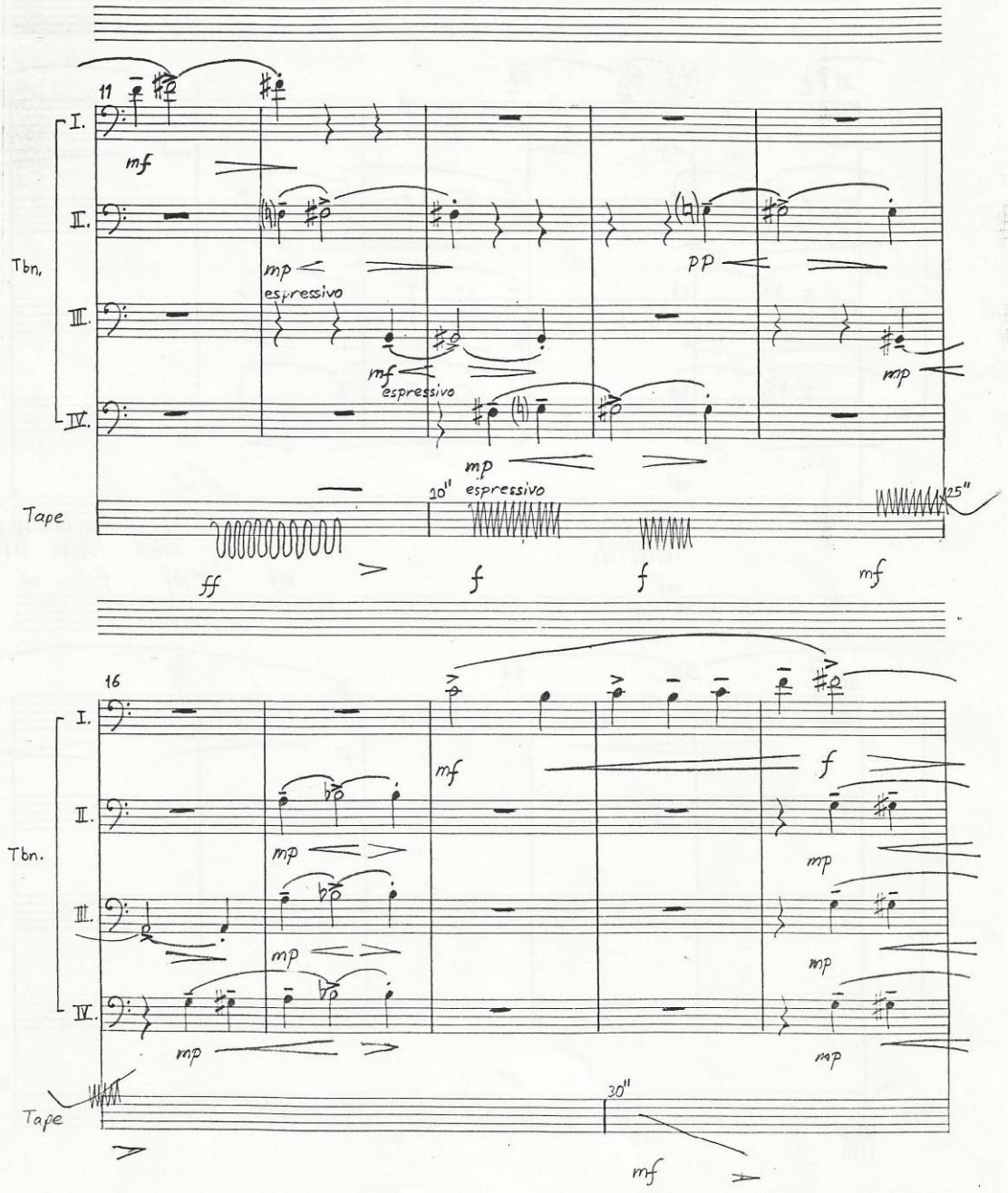
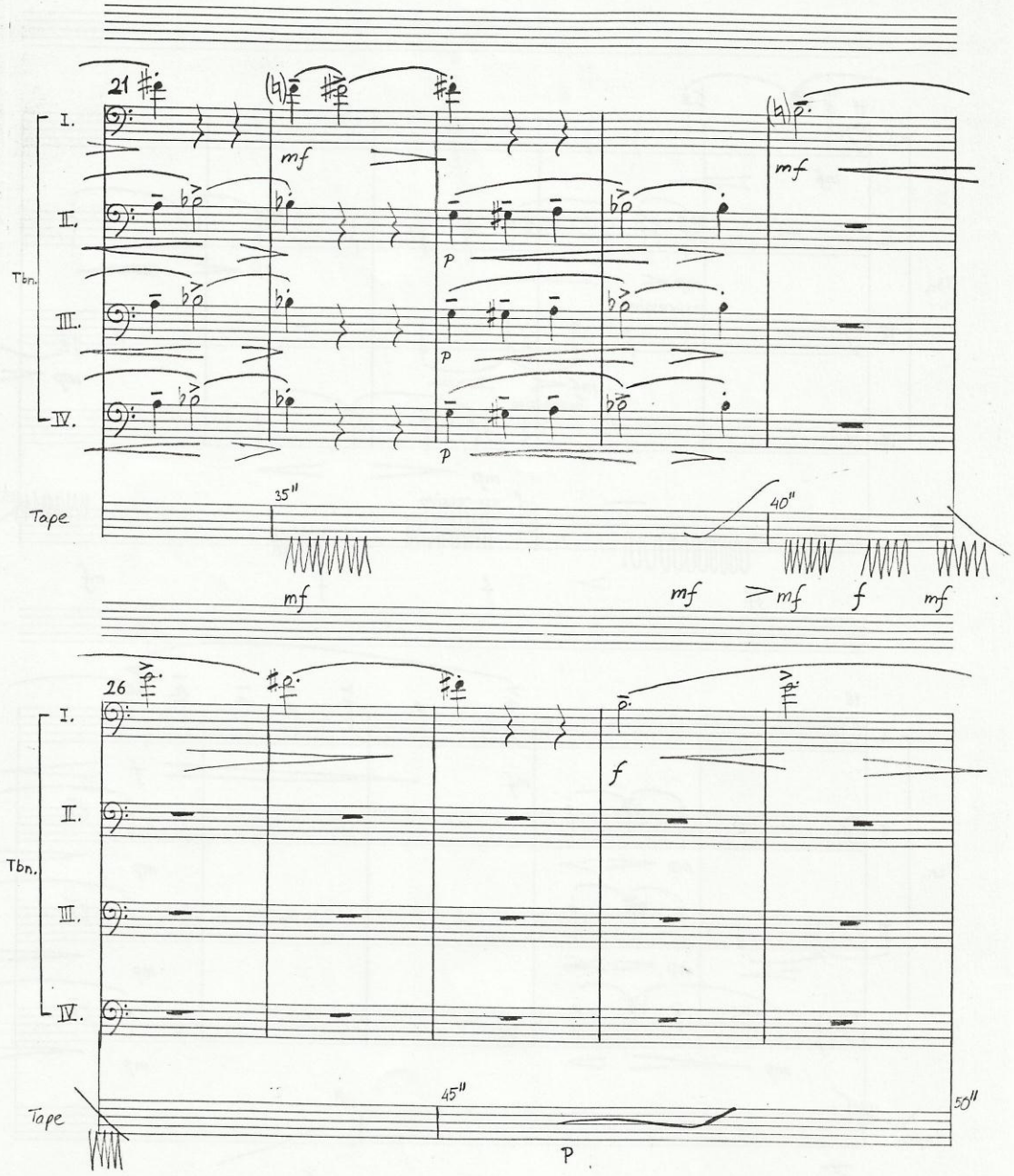
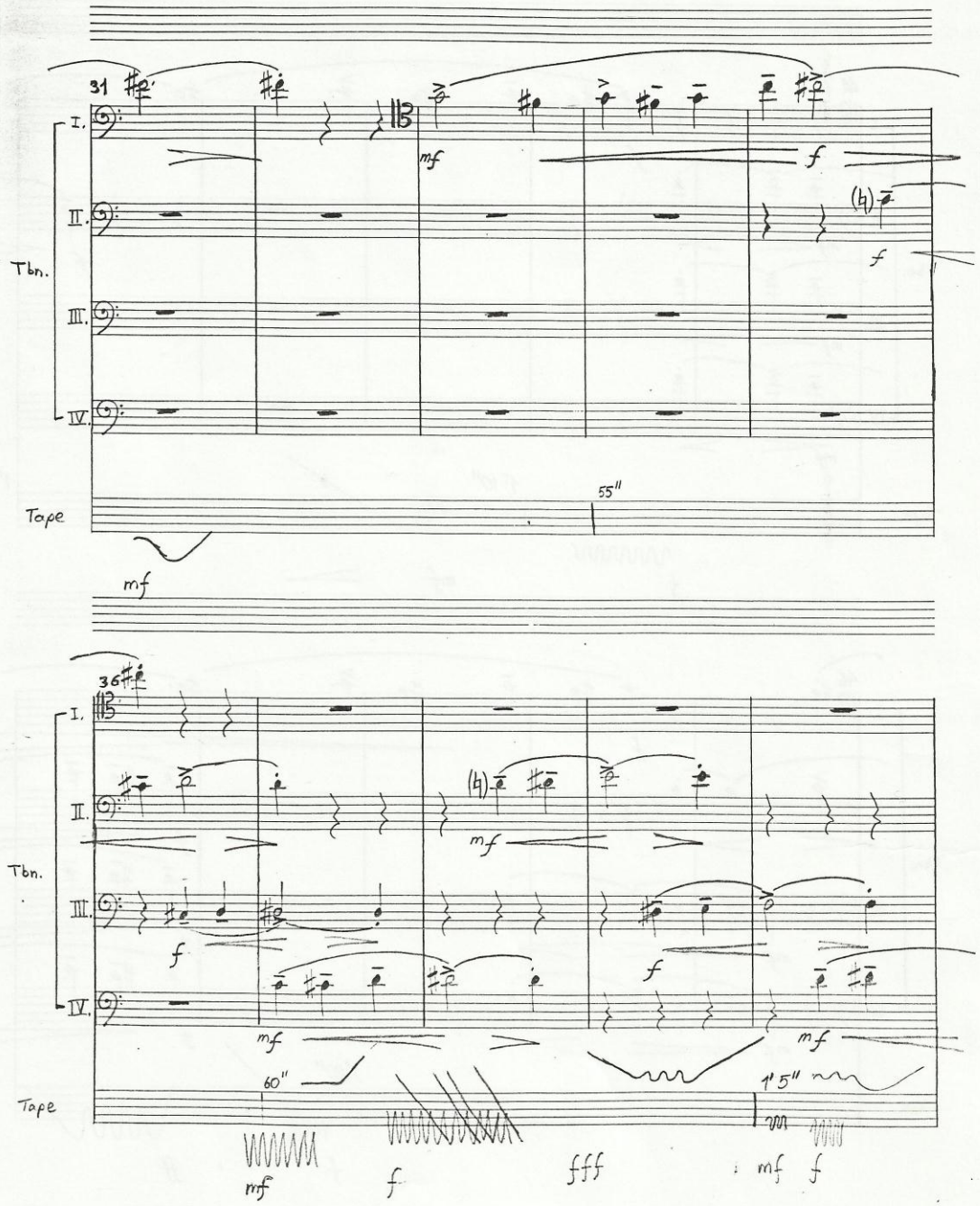
III.
THE YEARNING

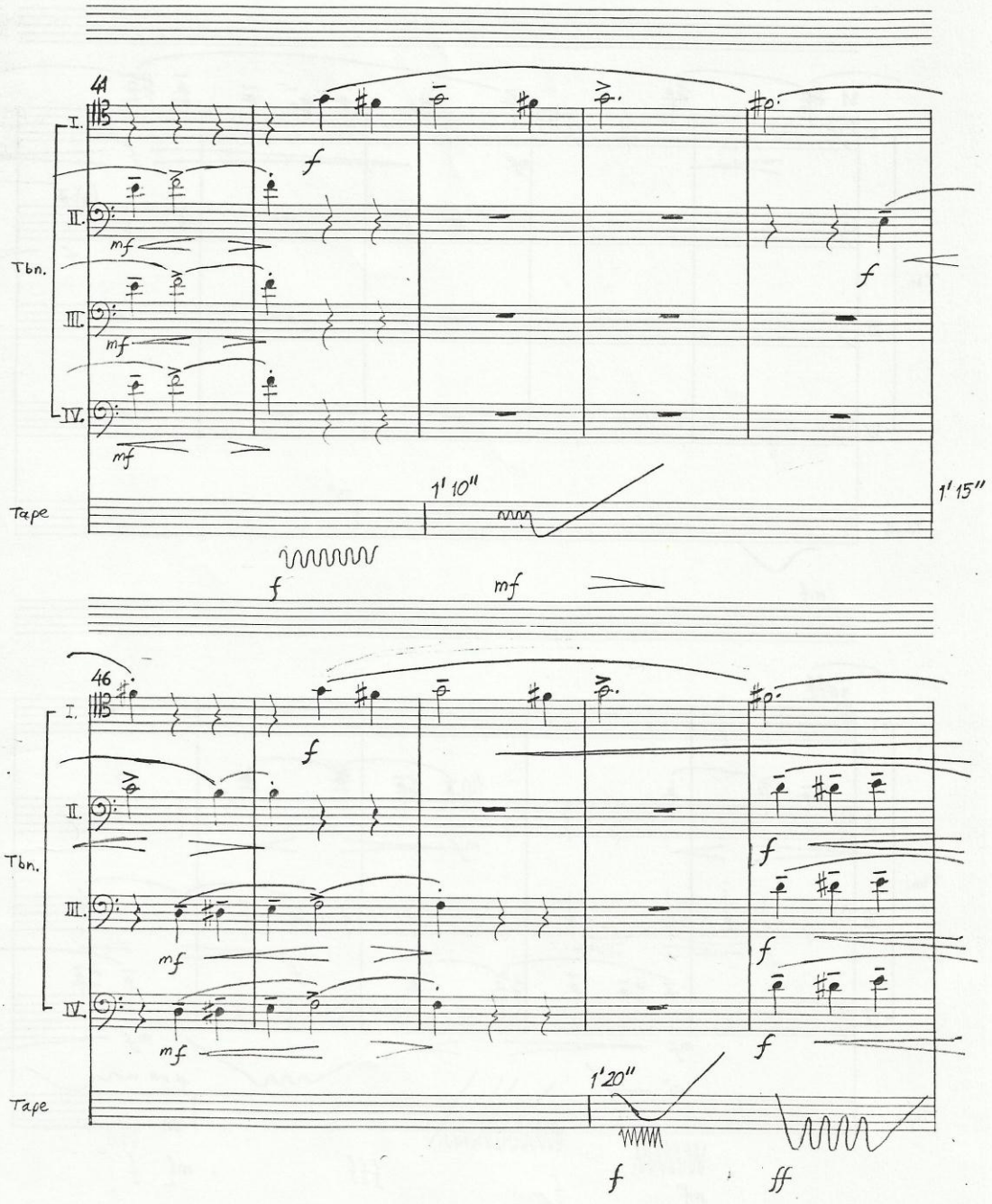
Moderato cantabile ♩= 108

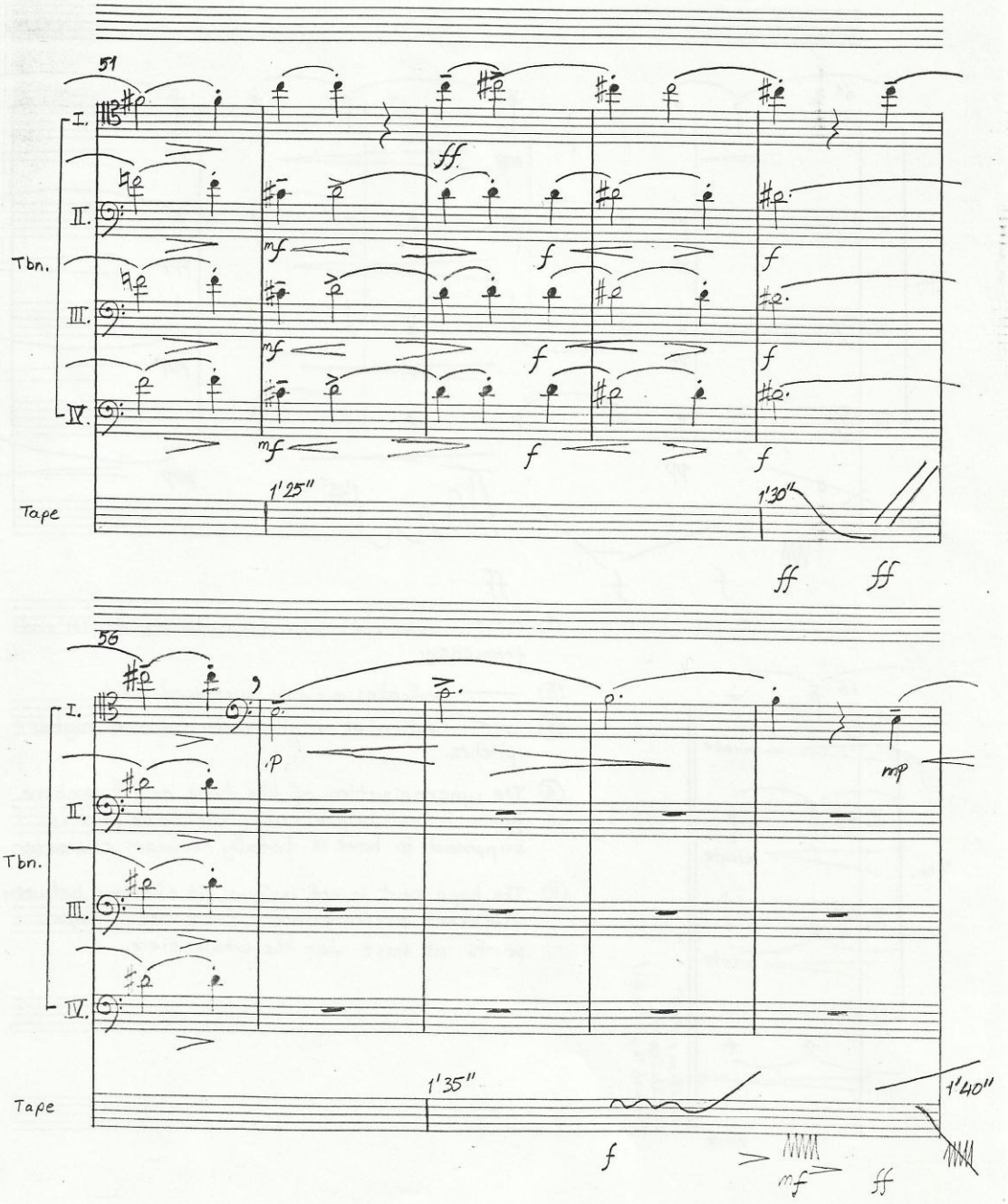


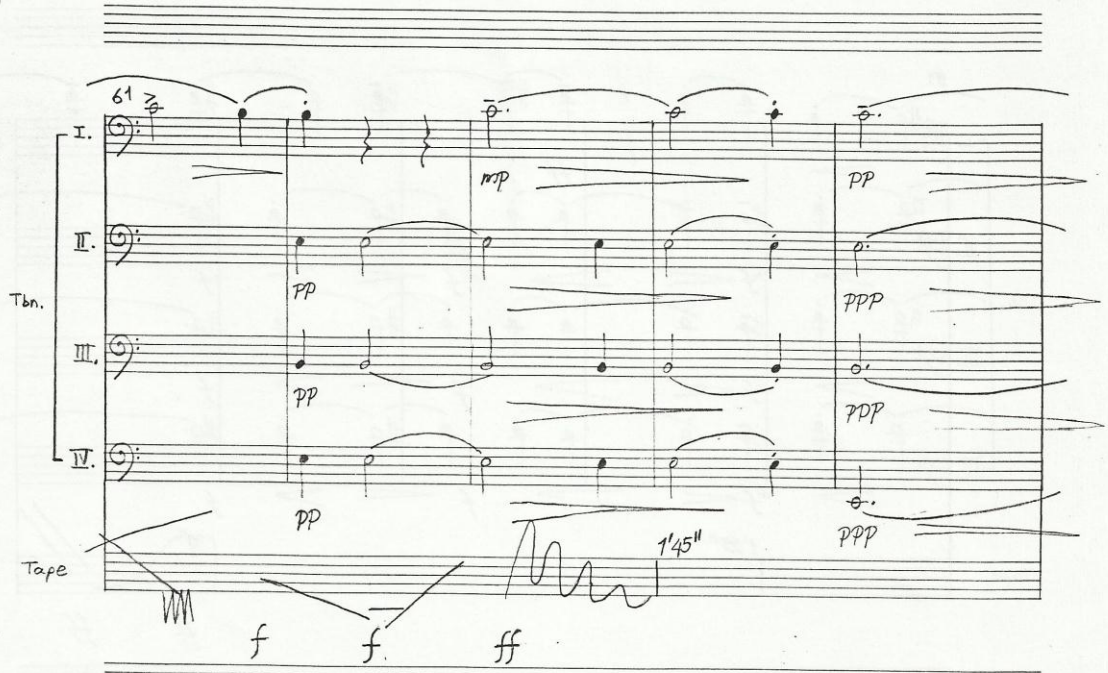

11
I.
II.
III.
IV.
Tbn.
mf
mp espressivo
pp
mf espressivo
mp
mp espressivo
Tape
20"
25"
ff
f
f
mf
16
I.
II.
III.
IV.
Tbn.
mf
f
mp
mp
mp
mp
mp
mp
Tape
30"
mf


21
I.
II.
III.
IV.
Tbn.
mf
p
Tape
35"
40"
mf
mf > mf
f
mf
26
I.
II.
III.
IV.
Tbn.
f
Tape
45"
50"
p


31
I.
II.
III.
IV.
Tbn.
Tape
mf
f
55"
36
60"
1'5"
fff


44
I.
II.
III.
IV.
Tbn.
f
mf
f
mf
mf
Tape
1' 10"
1' 15"
f
mf
46
I.
II.
III.
IV.
Tbn.
f
f
mf
f
mf
f
Tape
1'20"
f
ff


51
I.
II.
III.
IV.
Tbn.
Tape
ff
mf
f
1'25"
1'30"
ff
ff
56
I.
II.
III.
IV.
Tbn.
Tape
p
mp
1'35"
1'40"
f
mf
ff



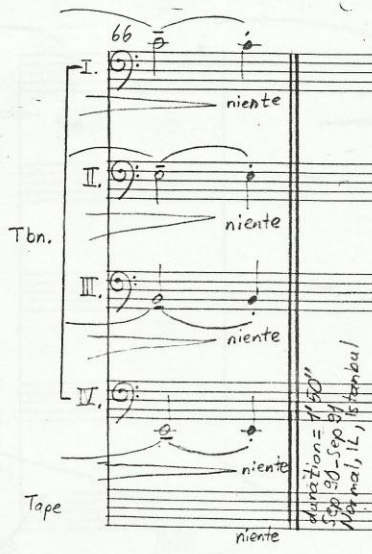
① ∿∿∿ indicates vibrato, with its depth and frequency.

② —— indicates a single sustained pitch.

③ ⁄ indicates a glissando towards higher pitches.

④ The syncronization of the tape and trombone parts is not important. The tape part is supposed to have a totally random character.

⑤ The tape part is not unique, it changes between different performances. There are 2 tape parts at least for the whole piece.



IV.

THE RITUAL

(Tape part)

	Approx. Duration	Common Music Algorithm
A	6"	(notes E3 C4 B3 F4 FS4 G3 GS3 A3 AS3 CS2 D2 DS2 in cycle) (rhythm① Q. E. S E.. 32 32 32 32 32 S S E in cycle tempo 112 ~~for 2~~)
B	16"	(notes (notes (E3 ~~((C4:weight 5)(B3:weight4)(F4:weight2)(FS4:weight2) in random for 4)~~ (G3 GS3 (A4:weight4)(AS4:weight4) in random for 6) (CS2 D2 DS2))))
A	4"	(notes E3 C4 B3 F4 FS4 G3 GS3 A3 AS3 CS2 D2 DS2 in cycle)
B	40"	(notes same as B)
C	12"	(notes (notes (E3 ~~((C4:weight5)(B3:weight4)(F4:weight5)(FS4:weight5) in random for 6)~~ (G3 GS3 A3 AS3 in random for 4) ~~(CS2 D2 DS2)~~)))
B	55"	
A	10"	
B	8"	
A	6"	
D	19"	(notes (notes (E3 ((C4:weight2)(B3:weight2)(F4:weight5)(FS4:weight5) in random) ~~(G3 GS3 (A4:weight4)(FS4:weight4) in random)~~ (CS2 D2 DS2)))

Total Duration ≃ 2' 50" Sep 90 Normal, Illinois

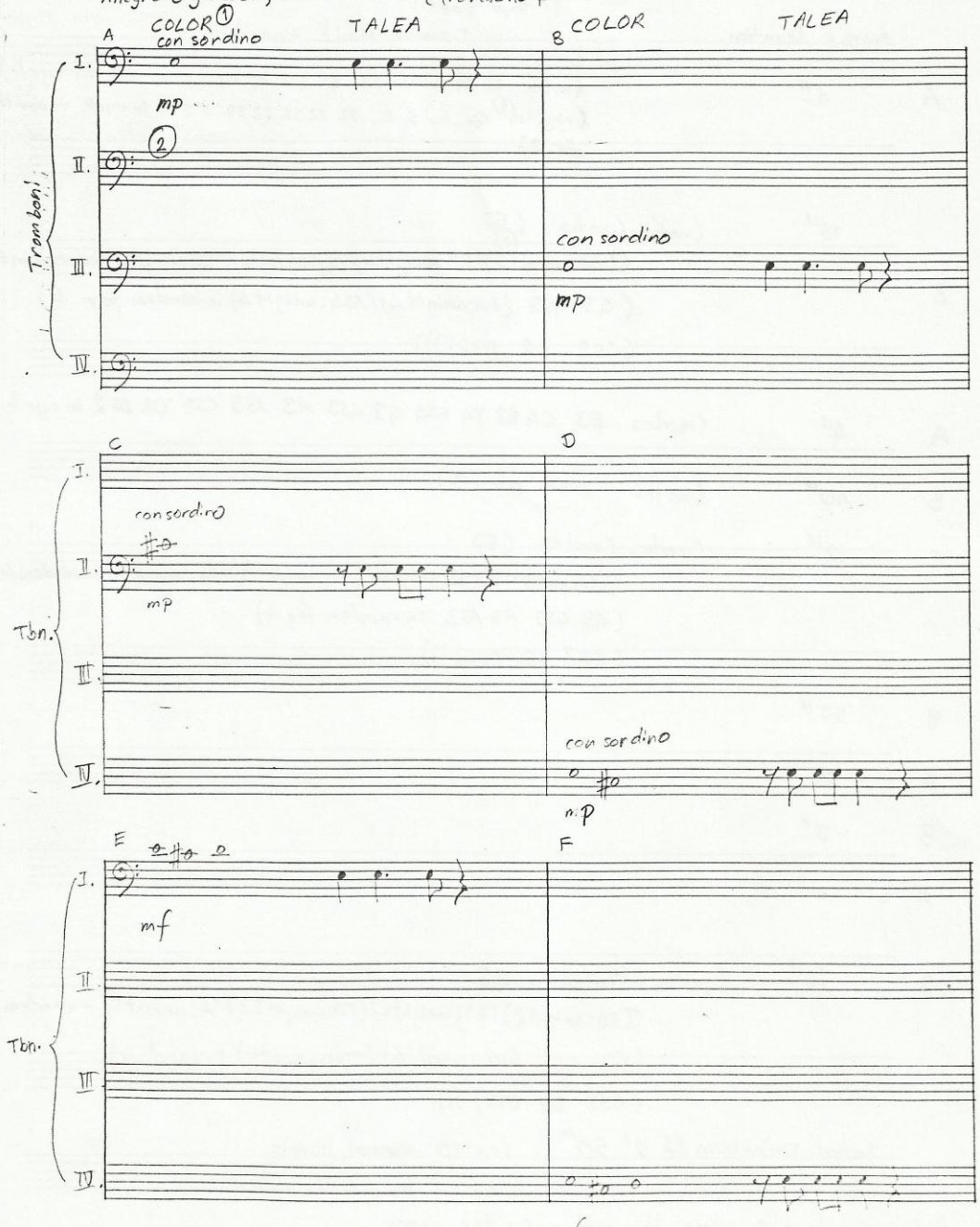
① Rhythm is the same through out the piece.

② weight parameter increases the possibility of that item to be realized in a random sequence

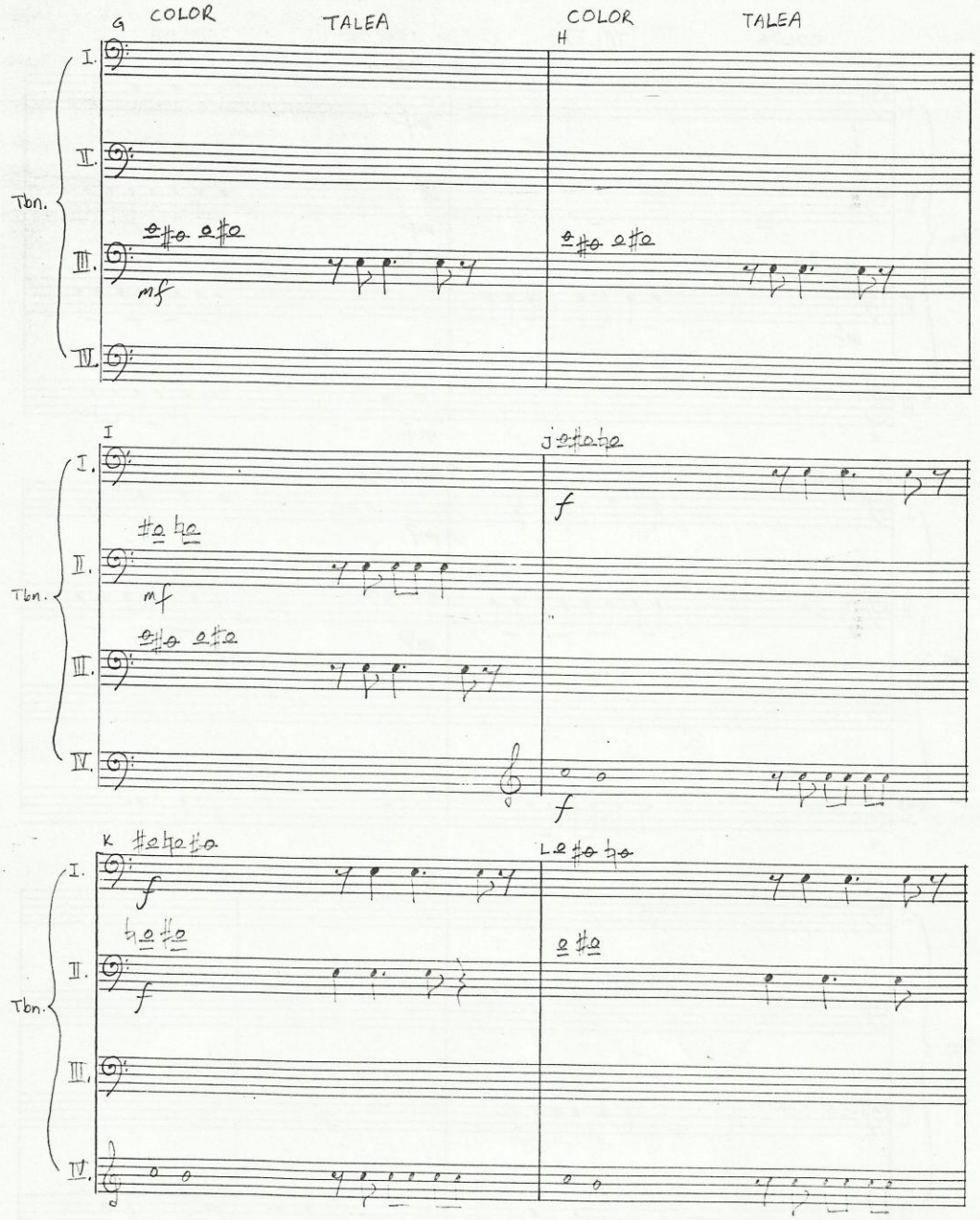
IV.

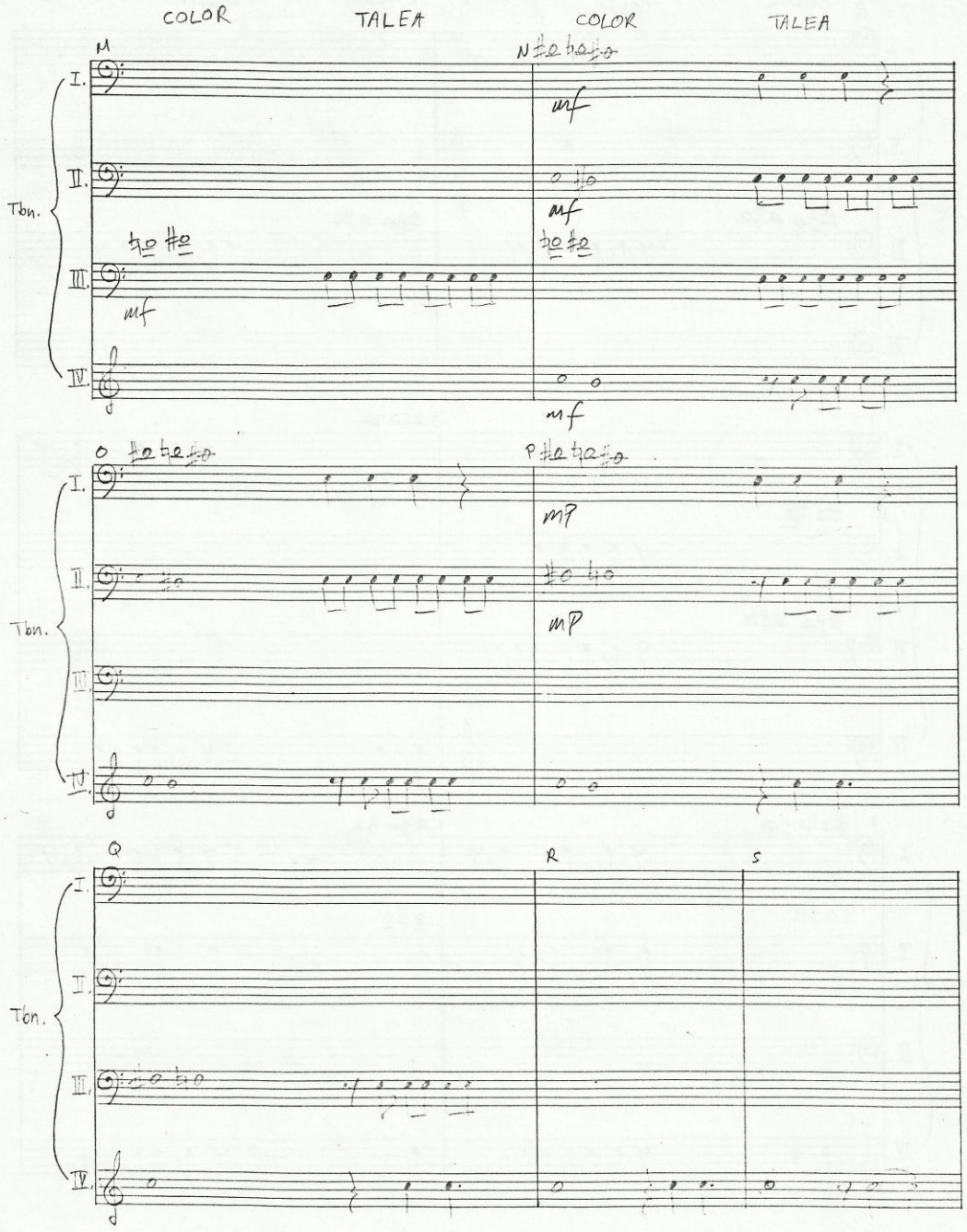
RITUAL
(Trombone parts)

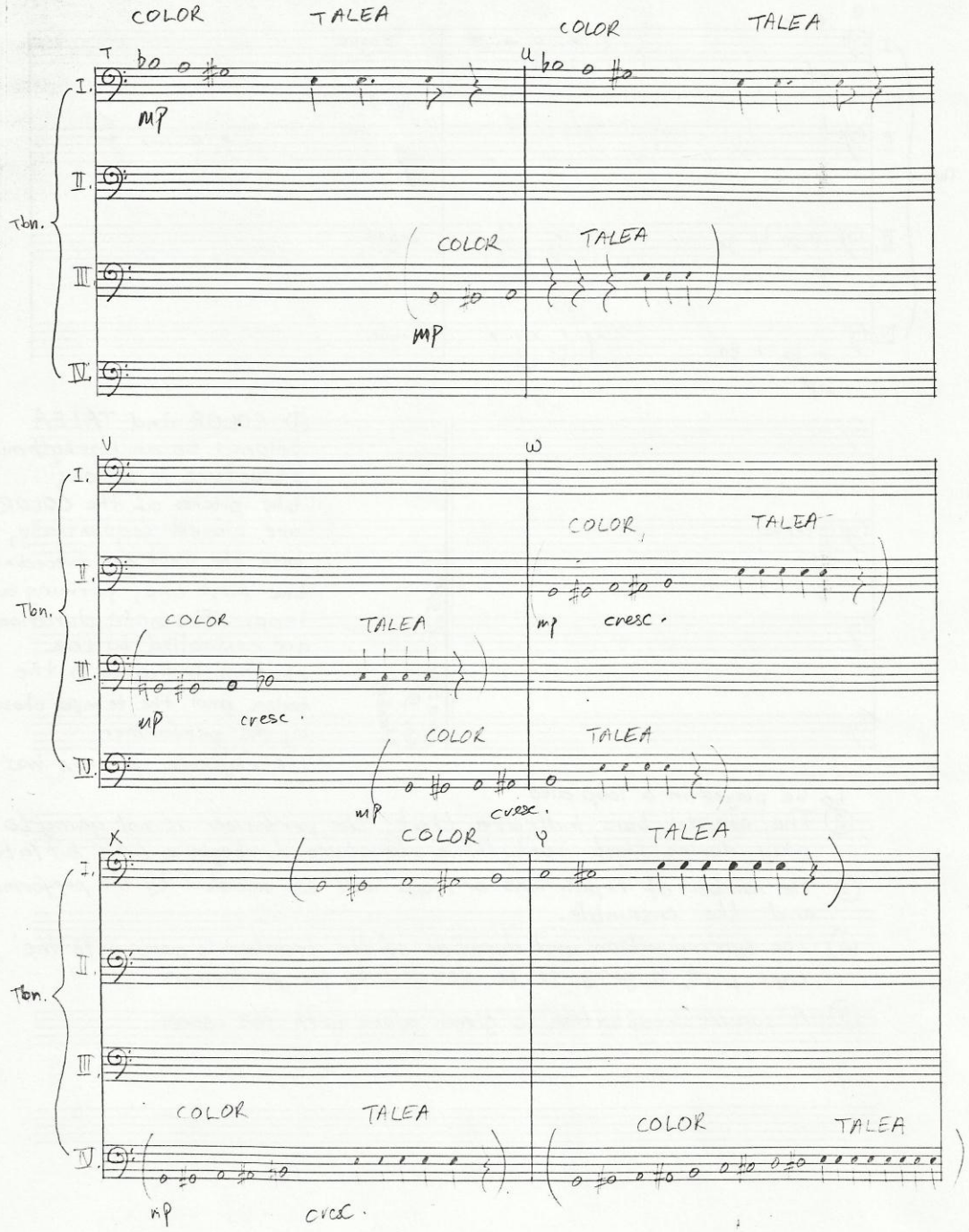
Allegro e giocoso, ♩ = 126

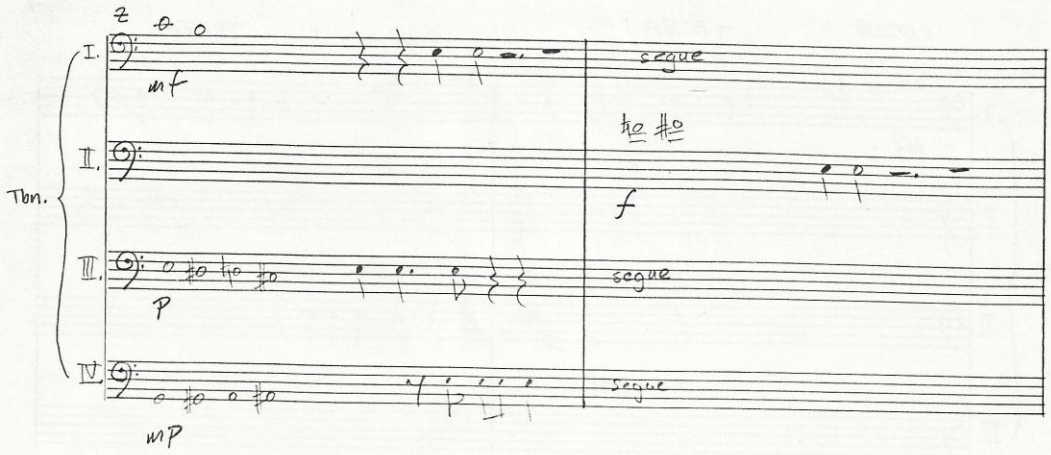


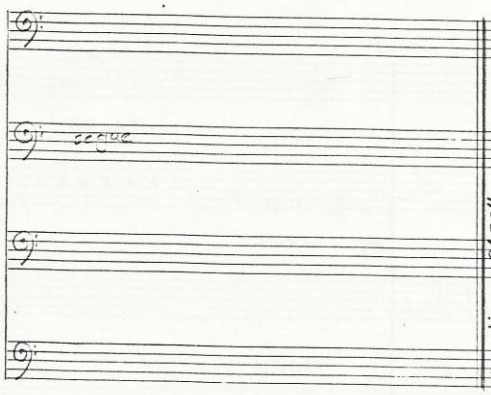
① Please, have a look at the performance notes at the end.


G
COLOR
TALEA
COLOR
TALEA
H
Tbn.
I.
II.
III.
IV.
mf
I
J
f
K
L
f


COLOR
TALEA
COLOR
TALEA
M
N
O
P
Q
R
S
Ton.
I.
II.
III.
IV.
mf
mp


T
COLOR
TALEA
U
COLOR
TALEA
I.
II.
III.
IV.
Tbn.
mp
COLOR
TALEA
mp
V
W
COLOR
TALEA
mp
cresc.
COLOR
TALEA
mp
cresc.
COLOR
TALEA
mp
cresc.
X
COLOR
Y
TALEA
COLOR
TALEA
COLOR
TALEA
mp
cresc.





① COLOR and TALEA belongs to an isorhythmic structure in which; the pitches of the COLOR are played sequentially, with the last one preceding the first one, forming a loop. The note durations are controlled by the rhythm indicated in the talea and the tempo chosen by the performer. The rhythmic pattern has to be played in a loop also.

② The empty bars indicate that, the performer is not going to play during that isorhythmic structure or begin a little bit late.

③ The number of repetitions or loops will be decided by the performer and the ensamble.

④ The syncronization and duration of the trombonits parts with the tape part is going to be decided by the performers.

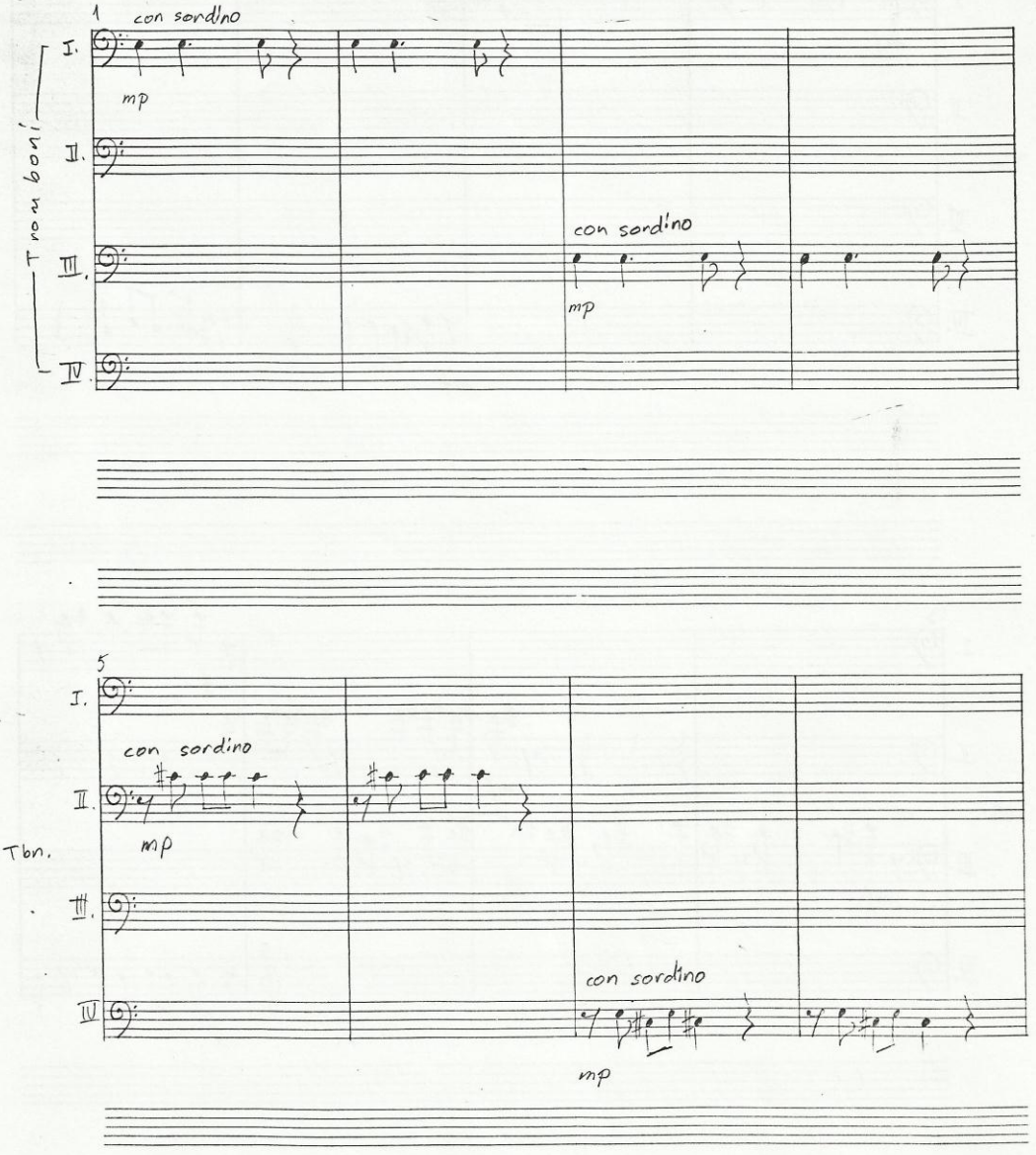
⑤ A sample realization is given along with this score.

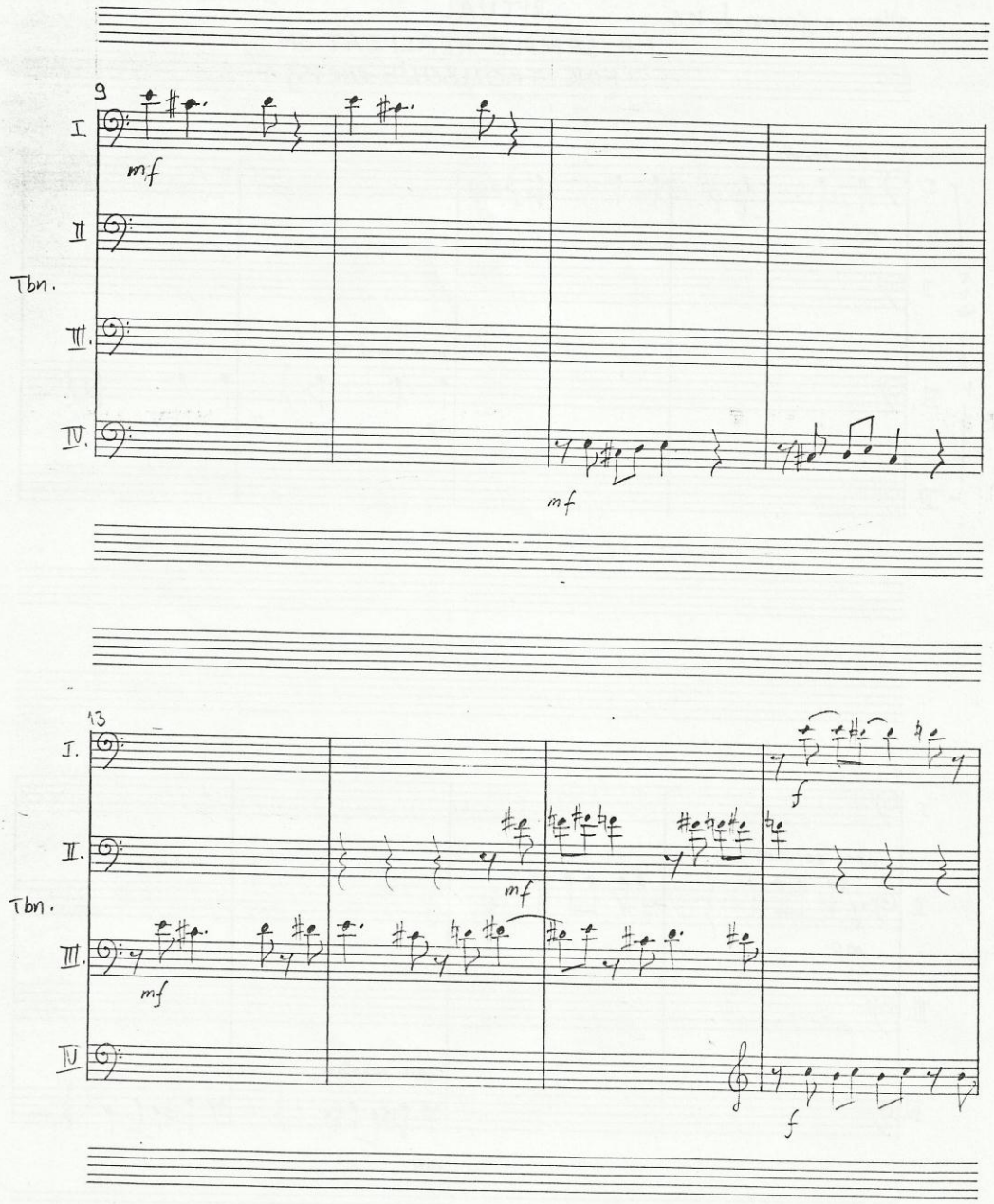
IV.

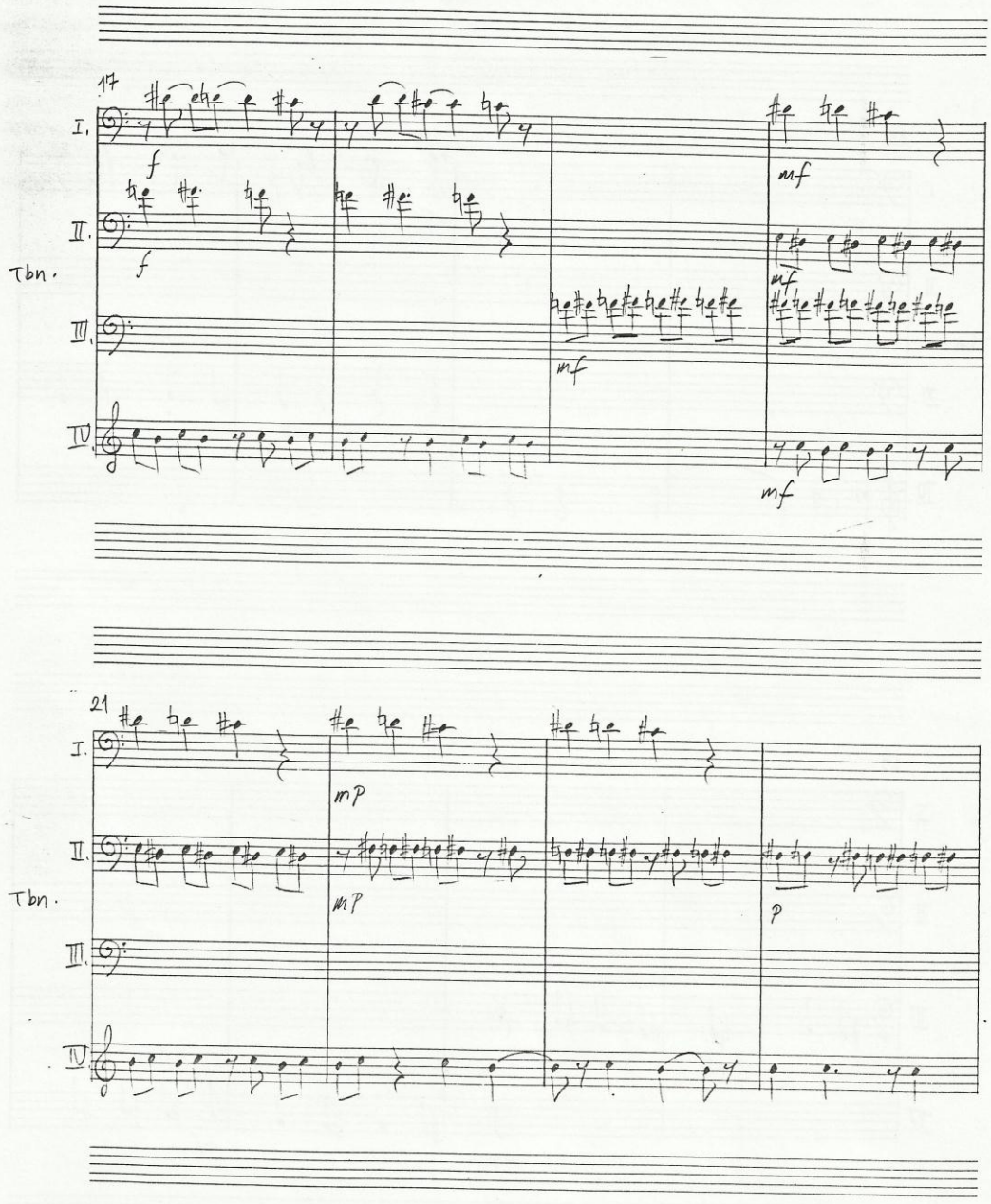
RITUAL

(A SAMPLE REALIZATION FOR TROMBONE PARTS)

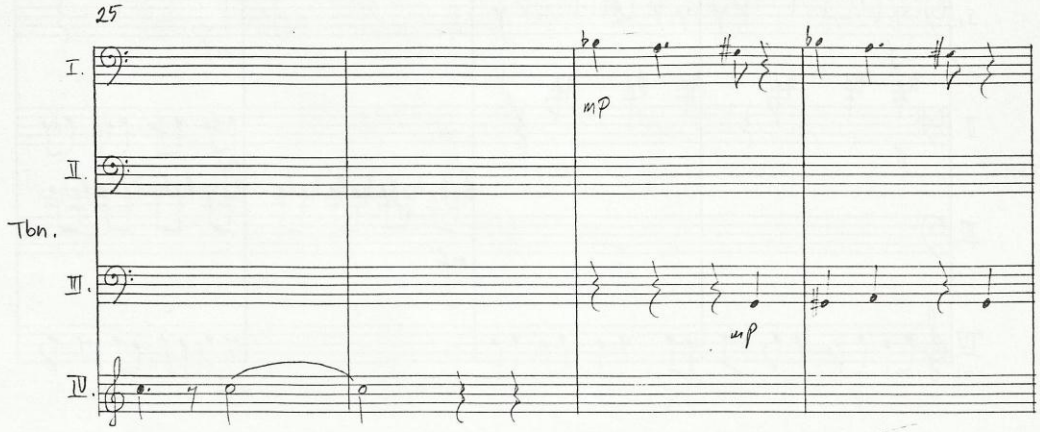
Allegro e giocoso, ♩= 126



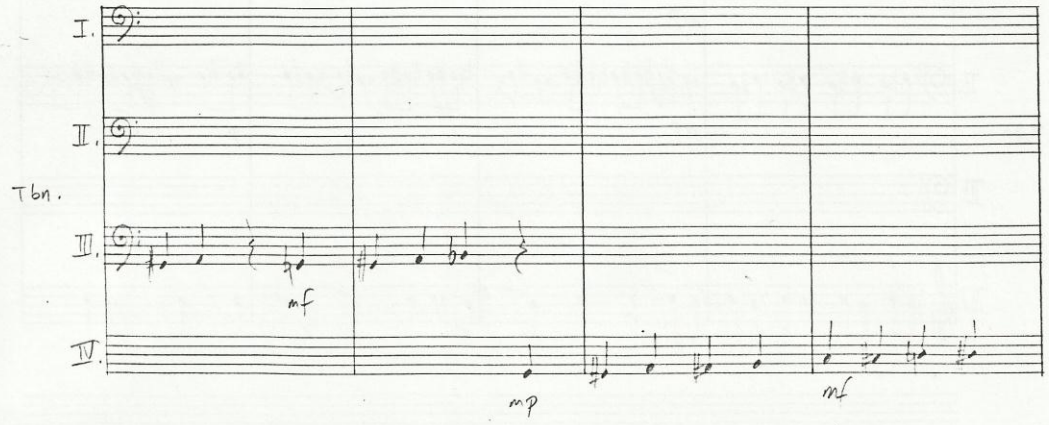

9
I
II
Tbn.
III.
IV.
mf
mf
13
I.
II.
Tbn.
III.
IV
mf
mf
f
f

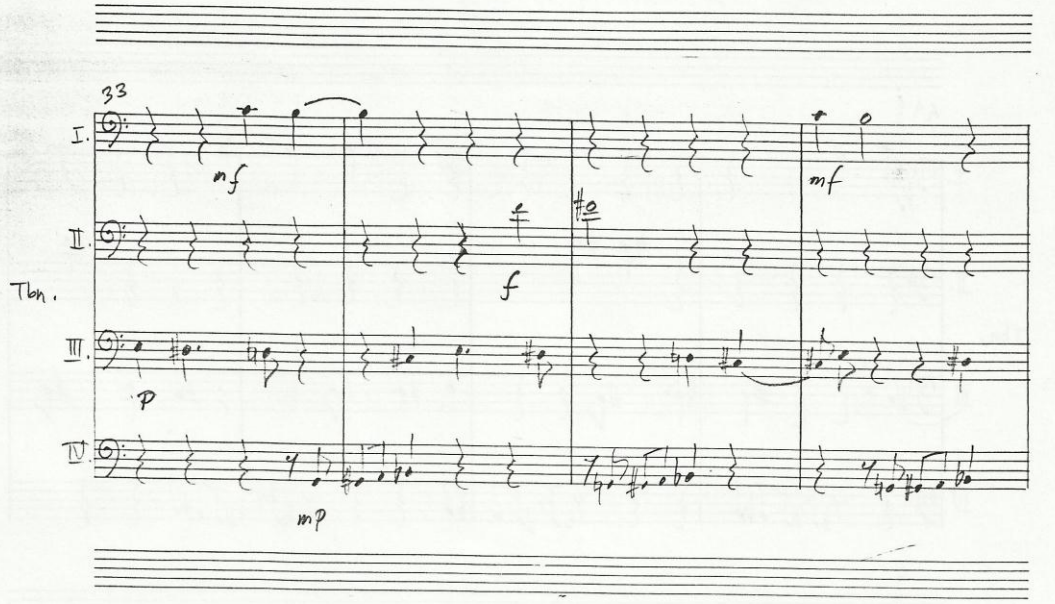

17
I.
II.
Tbn.
III.
IV.
f
f
mf
mf
mf
mf
21
I.
II.
Tbn.
III.
IV.
mp
mp
p

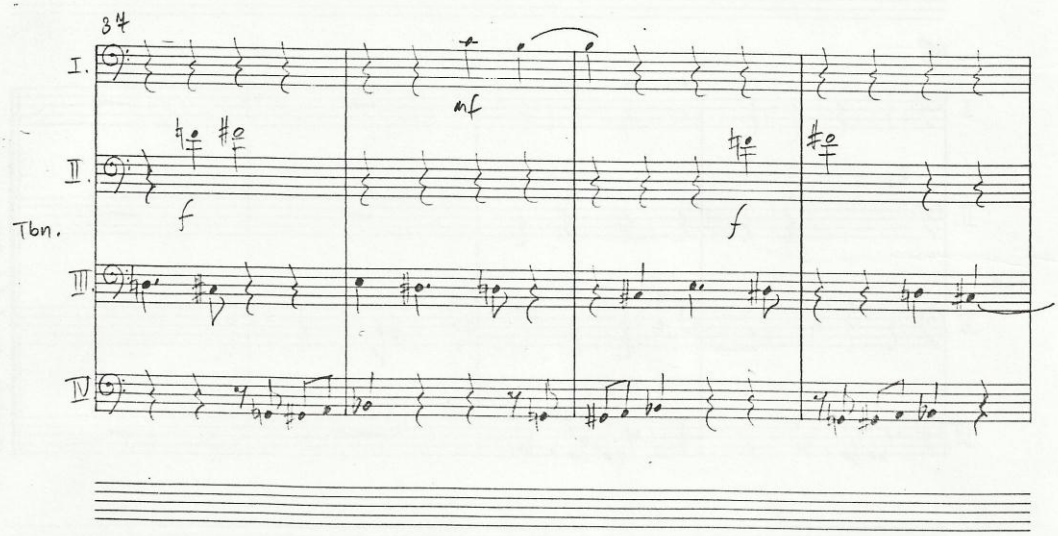
25



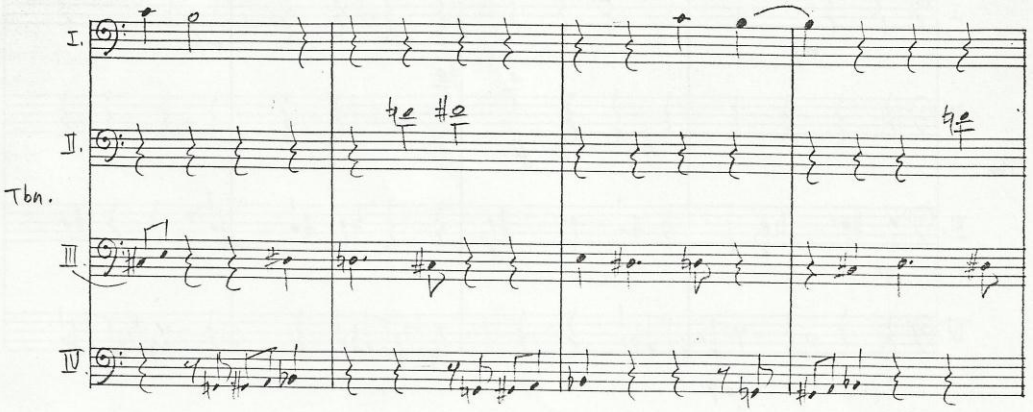
29



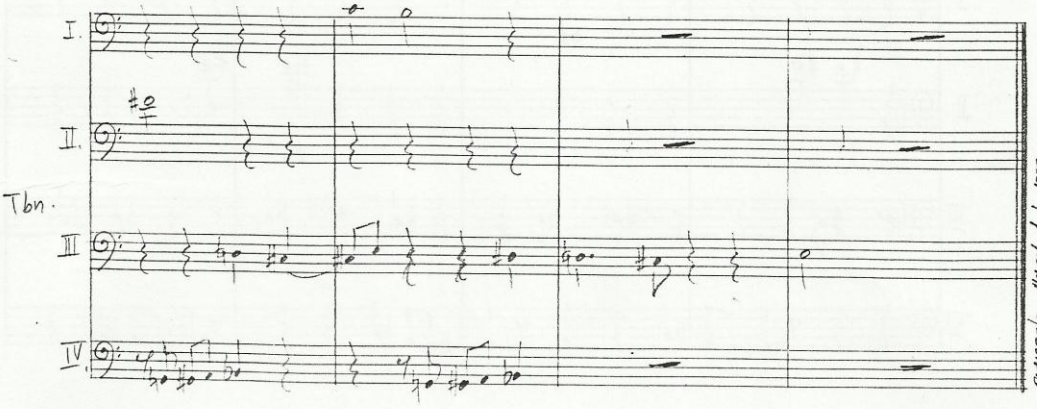

33
I.
II.
Tbn.
III.
IV.
mf
f
mf
p
mp


34
I.
II.
Tbn.
III.
IV.
mf
f
f

A1

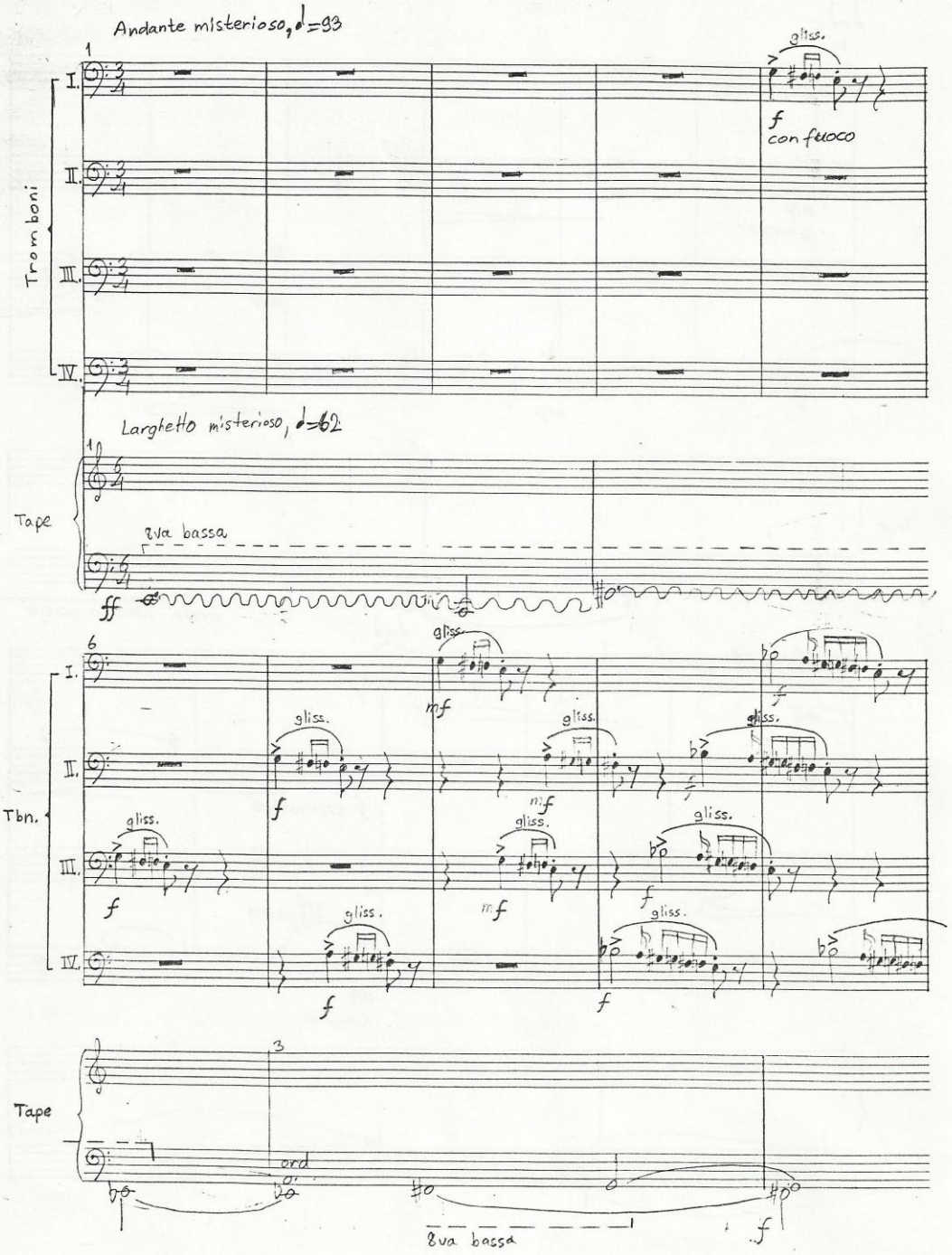


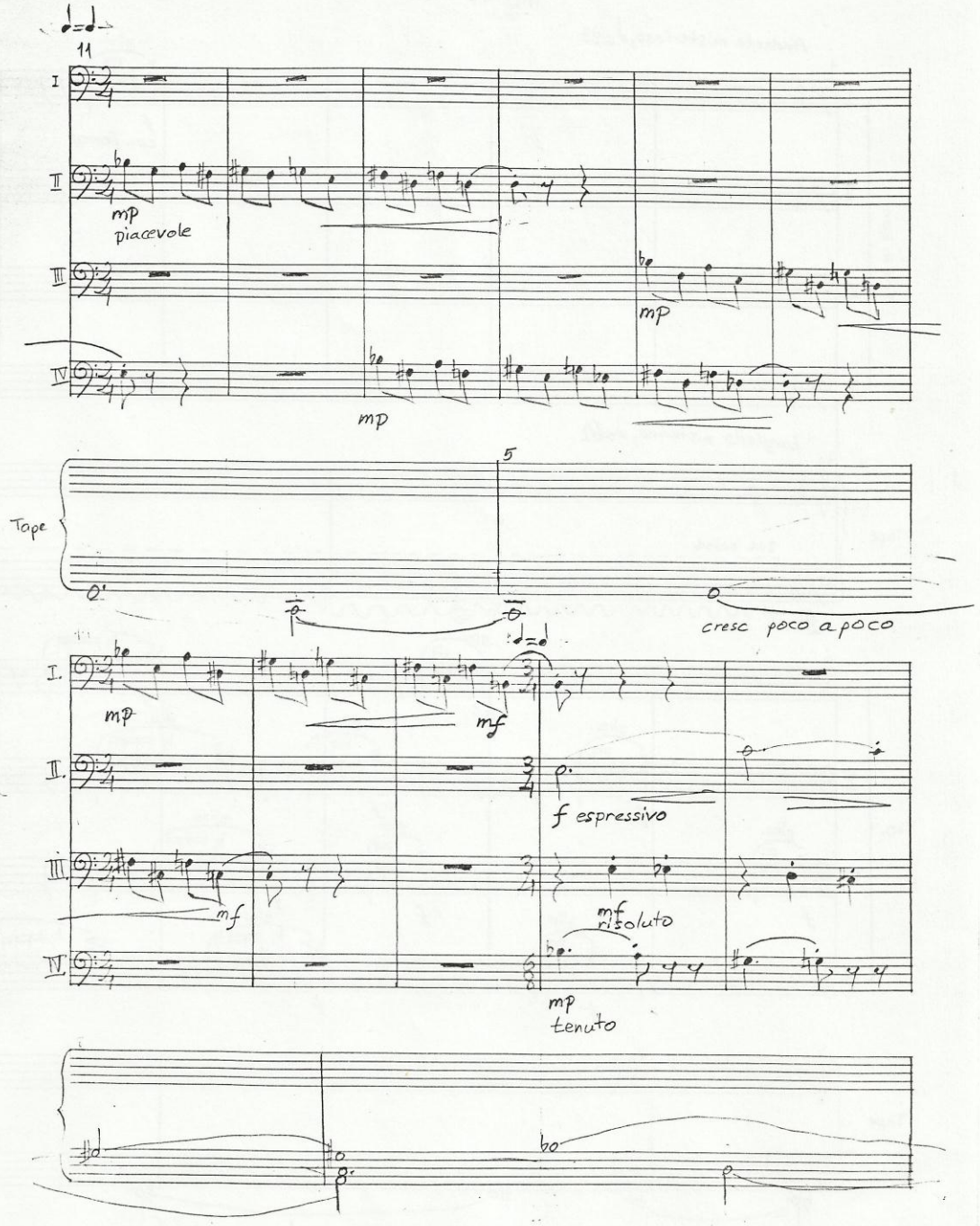
A5

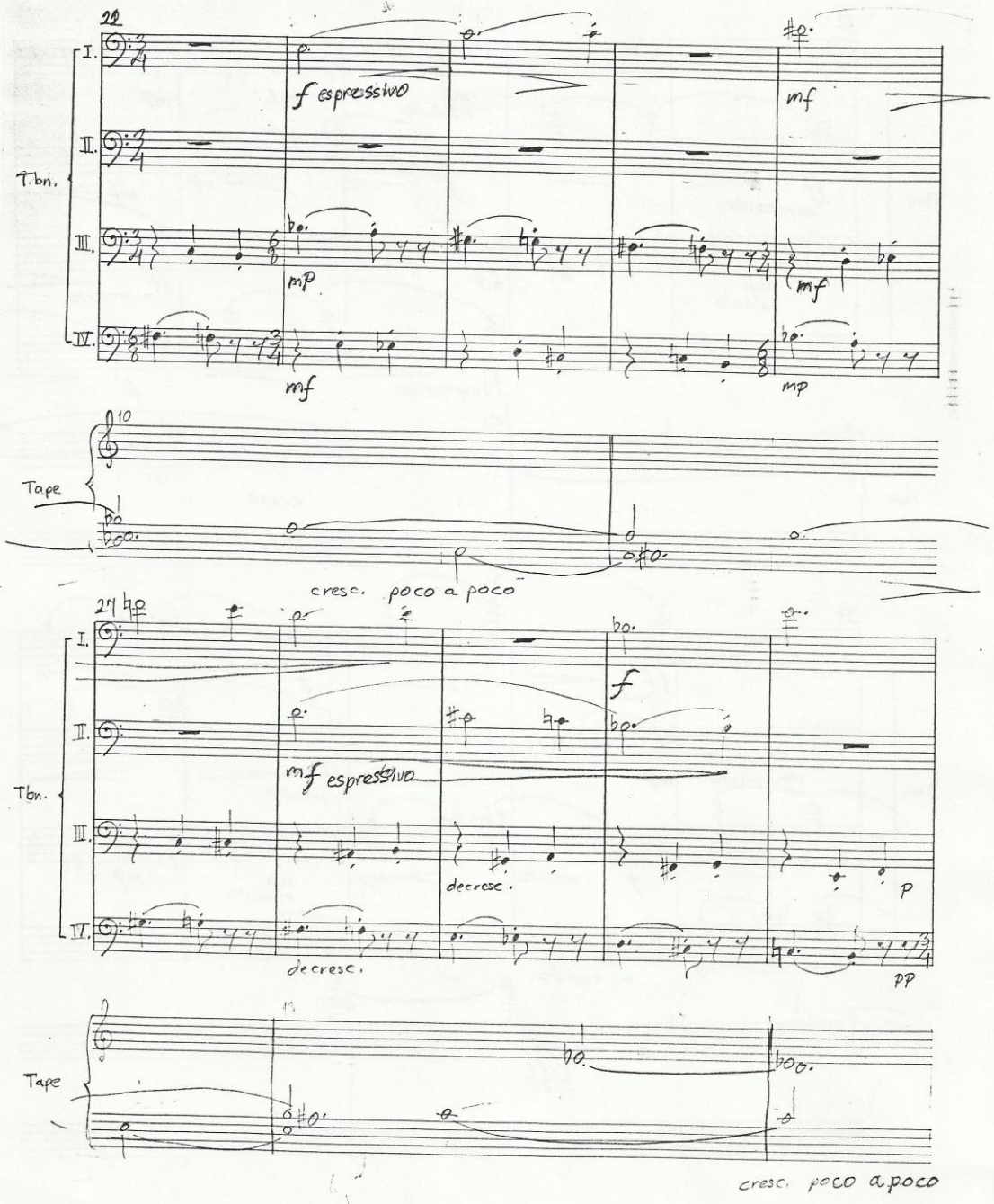


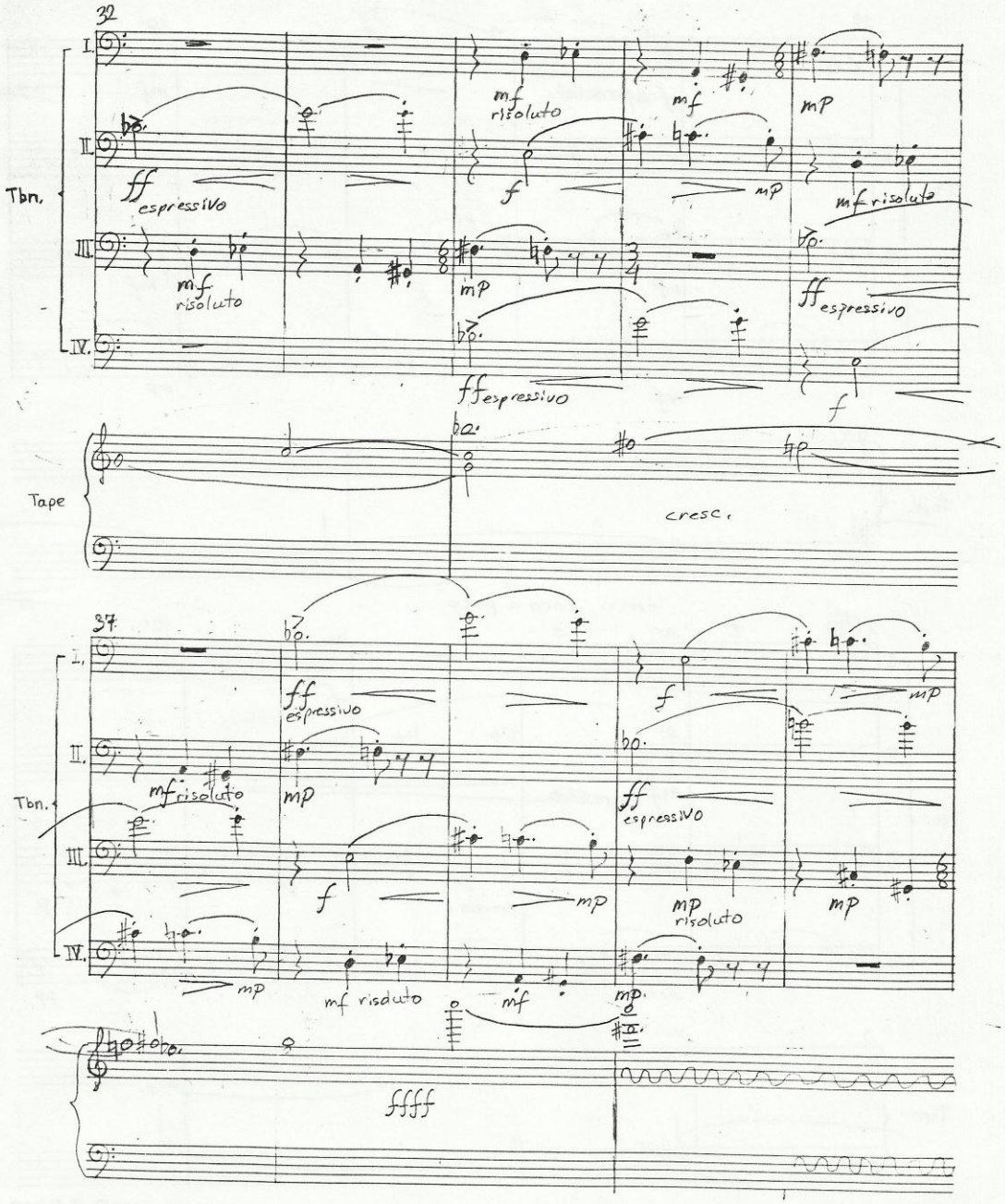
Brussels, March 1st, 1972

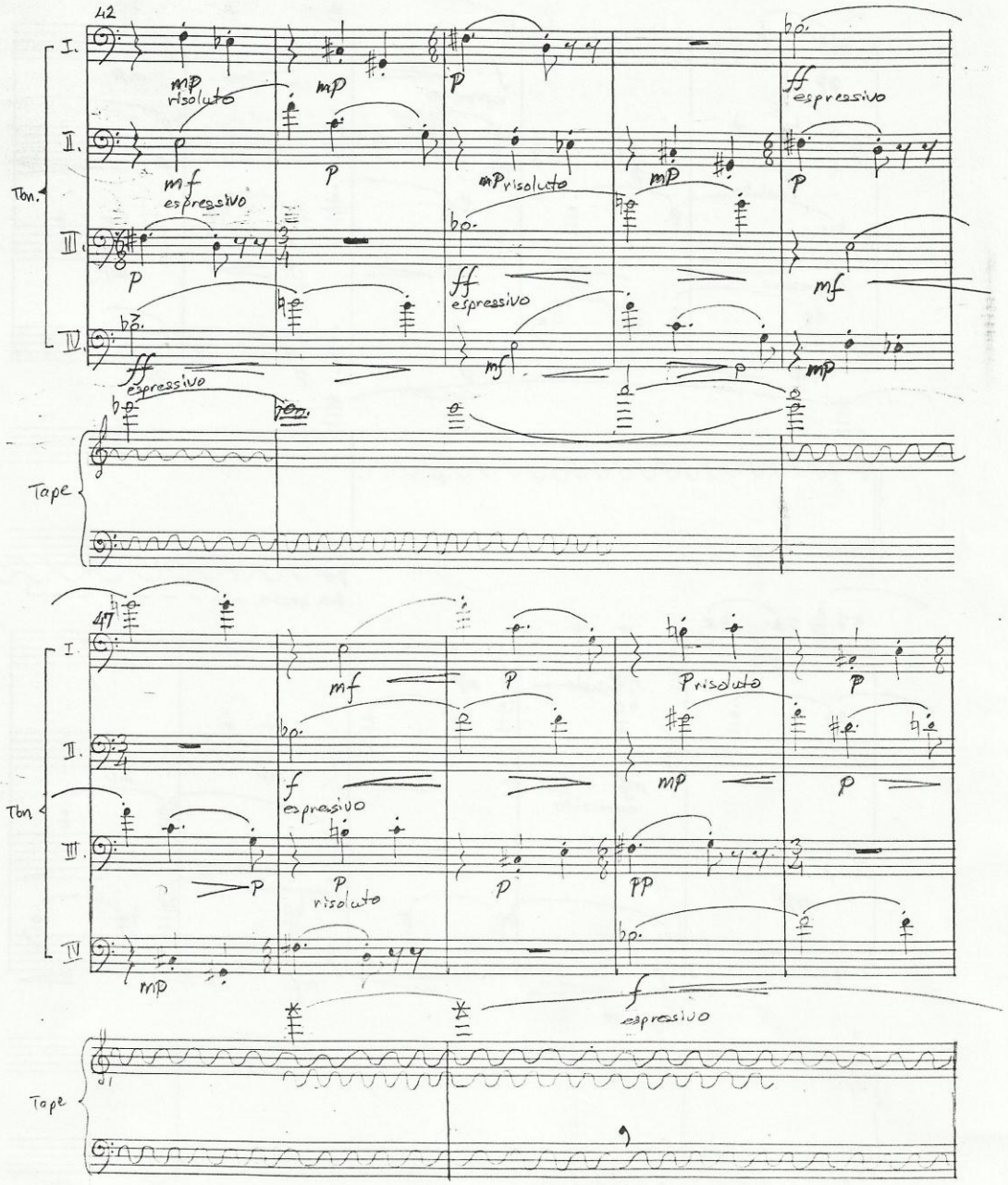
V.
THE OBLATION

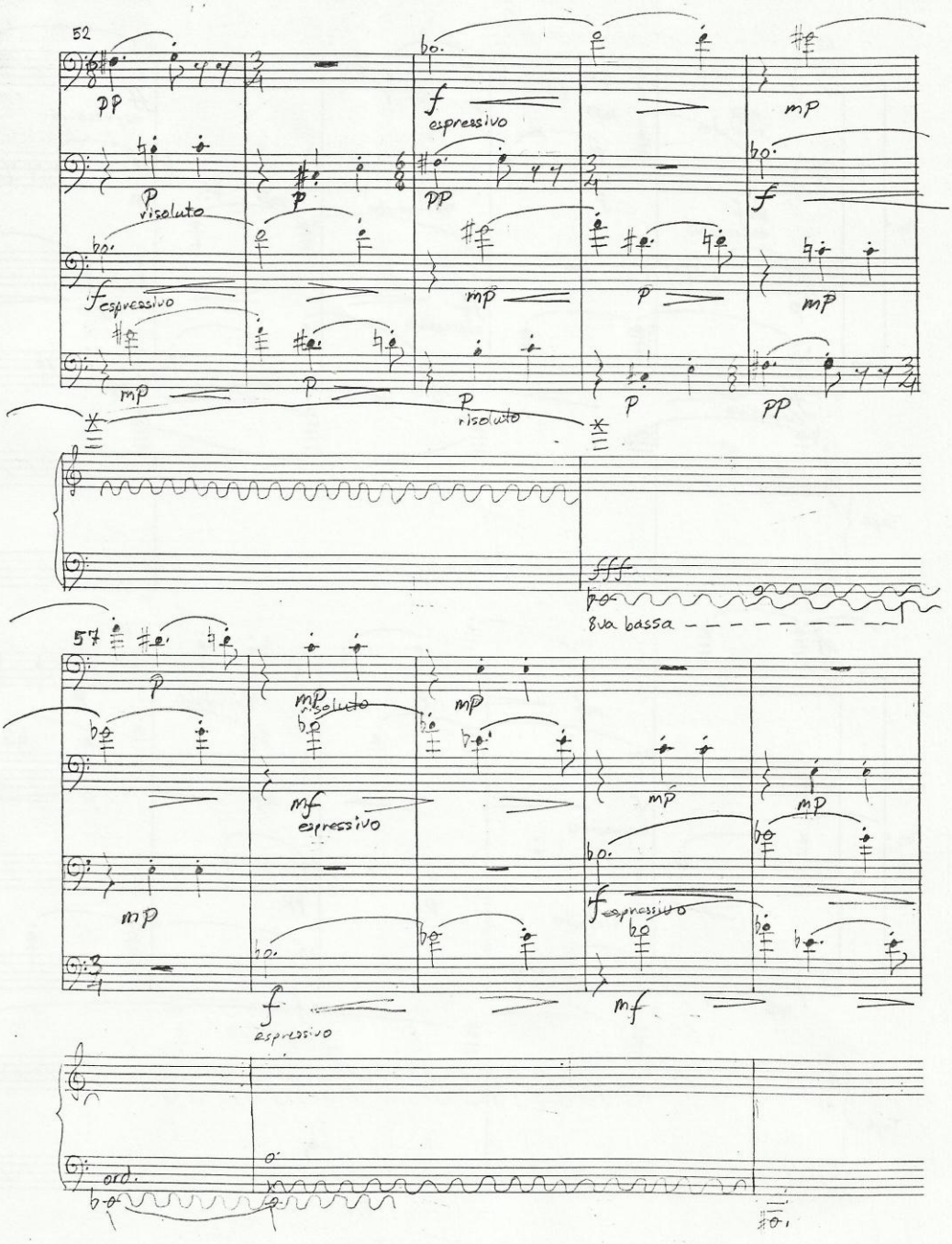


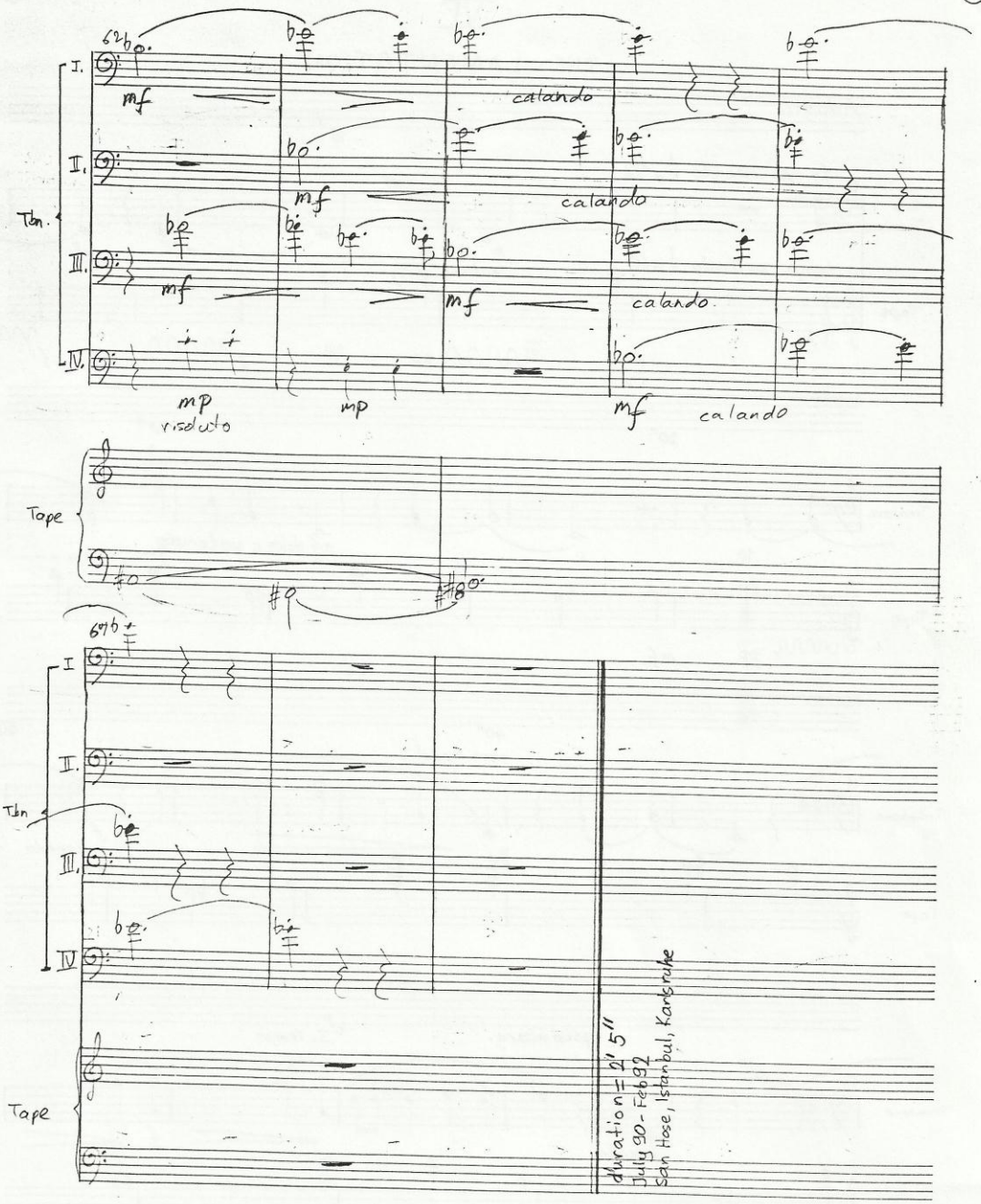

11
I
II
III
IV
mp
piacevole
mp
mp
5
Tape
cresc poco a poco
I.
II.
III.
IV.
mp
mf
mf
f espressivo
mf
ritoluto
mp
tenuto


22
I.
II.
T.bn.
III.
IV.
f espressivo
mf
mp
mf
mf
mp
Tape
10
cresc. poco a poco
27
I.
II.
Tbn.
III.
IV.
f
mf espressivo
decresc.
p
decresc.
pp
Tape
cresc. poco a poco


32
I.
II.
III.
IV.
Tbn.
ff espressivo
mf risoluto
mf
mp
f
mf risoluto
ff espressivo
Tape
cresc.
37
ff espressivo
mf risoluto
mp
f
mp
ff espressivo
mp risoluto
mf risoluto
mf
ffff

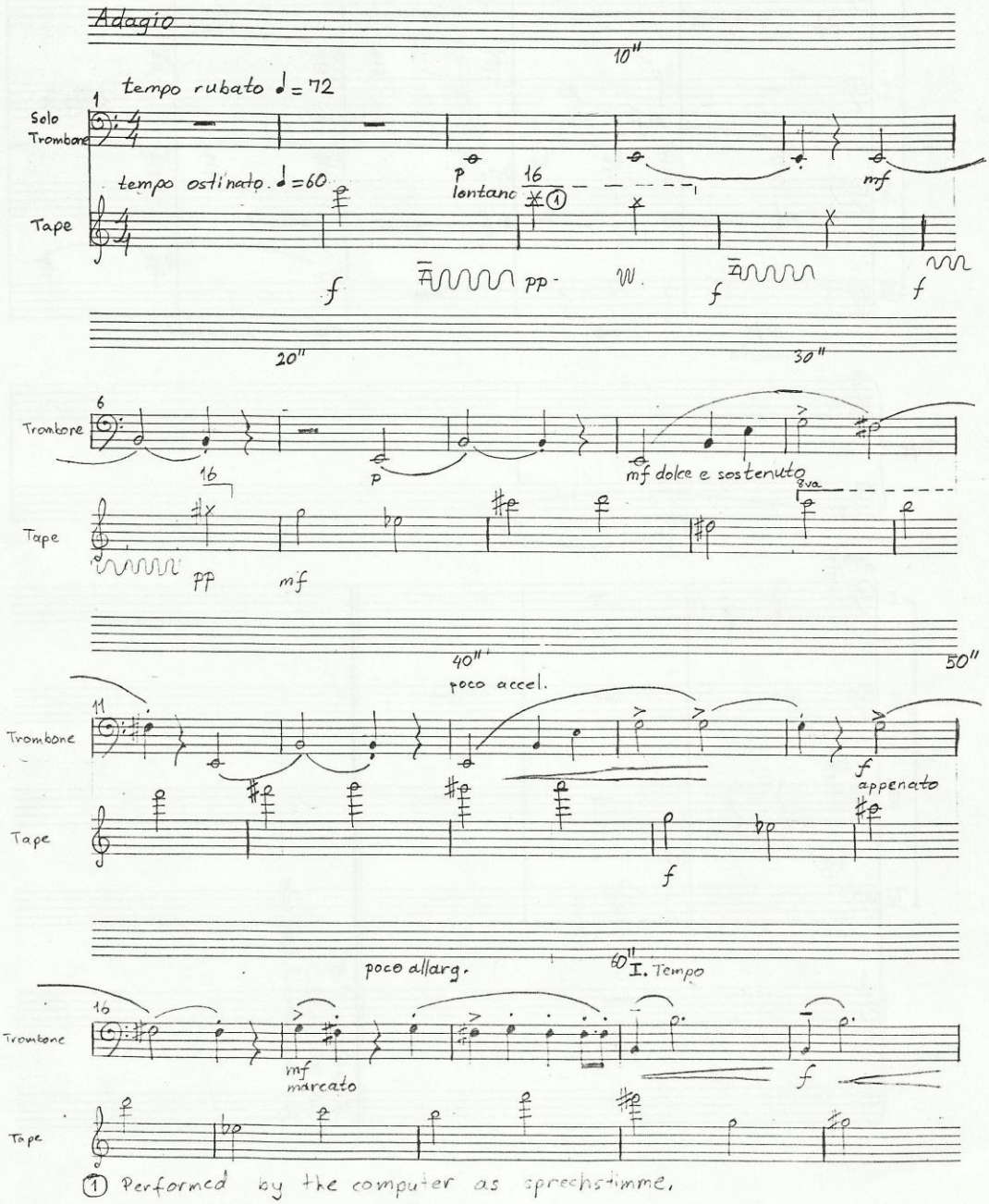

42
I.
II.
III.
IV.
Tbn.
mp risoluto
mf espressivo
ff espressivo
Tape
47
mf
f espressivo
p risoluto
Prisoluto
pp


52
pp
f
espressivo
mp
p
risoluto
p
pp
f
f espressivo
mp
p
mp
mp
p
p
risoluto
p
pp
fff
8va bassa
57
p
mp
risoluto
mp
mf
espressivo
mp
mp
mp
f espressivo
f
espressivo
mf
ord.

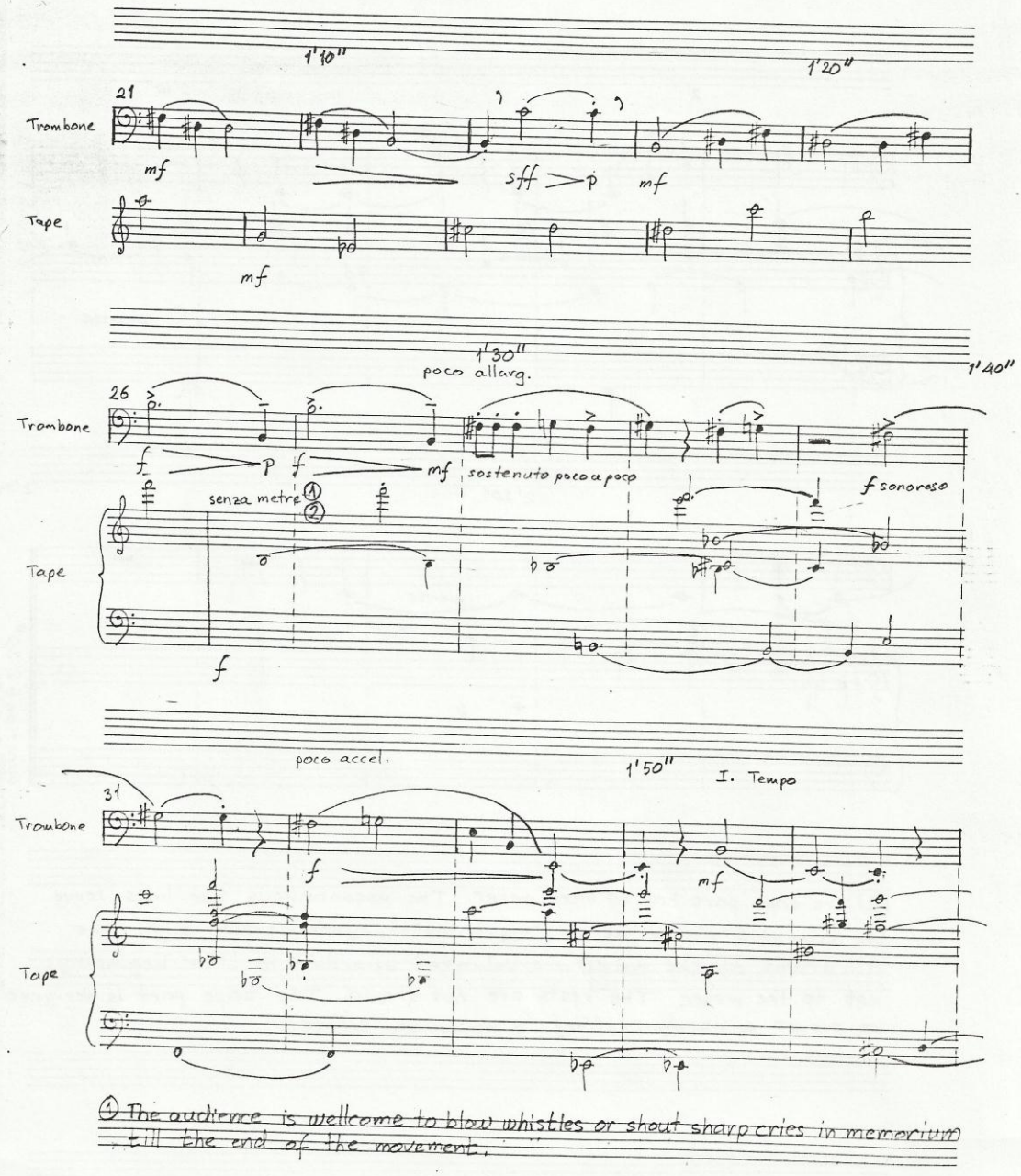

I.
II.
Tbn.
III.
IV.
mf
calando
mp
risoluto
Tape
I
II.
III.
IV
Tbn
Tape
duration = 2' 5"
July 90 - Feb 92
San Hose, Istanbul, Karlsruhe

VI

THE LAMENTATION

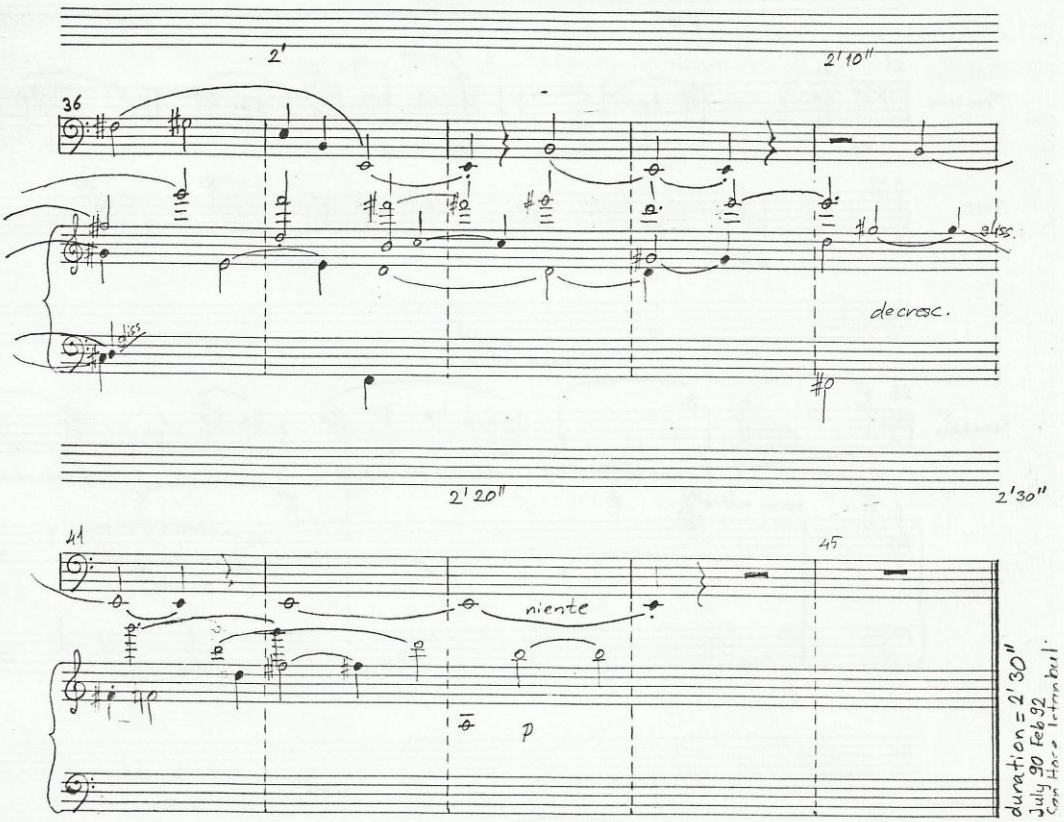


(1) Performed by the computer as sprechstimme.



① ~~The audience~~ is ~~welcome~~ to blow whistles or shout sharp cries in memoritum till the end of the movement.

ONER MÜZİK ALETLERİ
Vezneciler, Büyük Reşit Paşa Cad. 28
Beyazıt - İst. Tel: 522 18 36



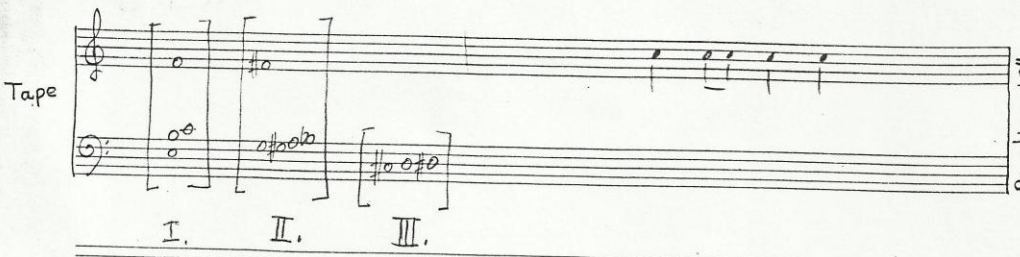
② The tape part has no more meter. The uncontinuous bar lines serve the trombone player as an "approximate" syncronization sign. The durations of the notes are indicated according to their beginning, not to the meter. The rests are not shown. The tape part is designed to arouse a random effect, a non-meter effect.

VII.

EPILOGUE
(for tape only)

With a suddenly changing random tempo, to be played in darkness

COLOR TALEA



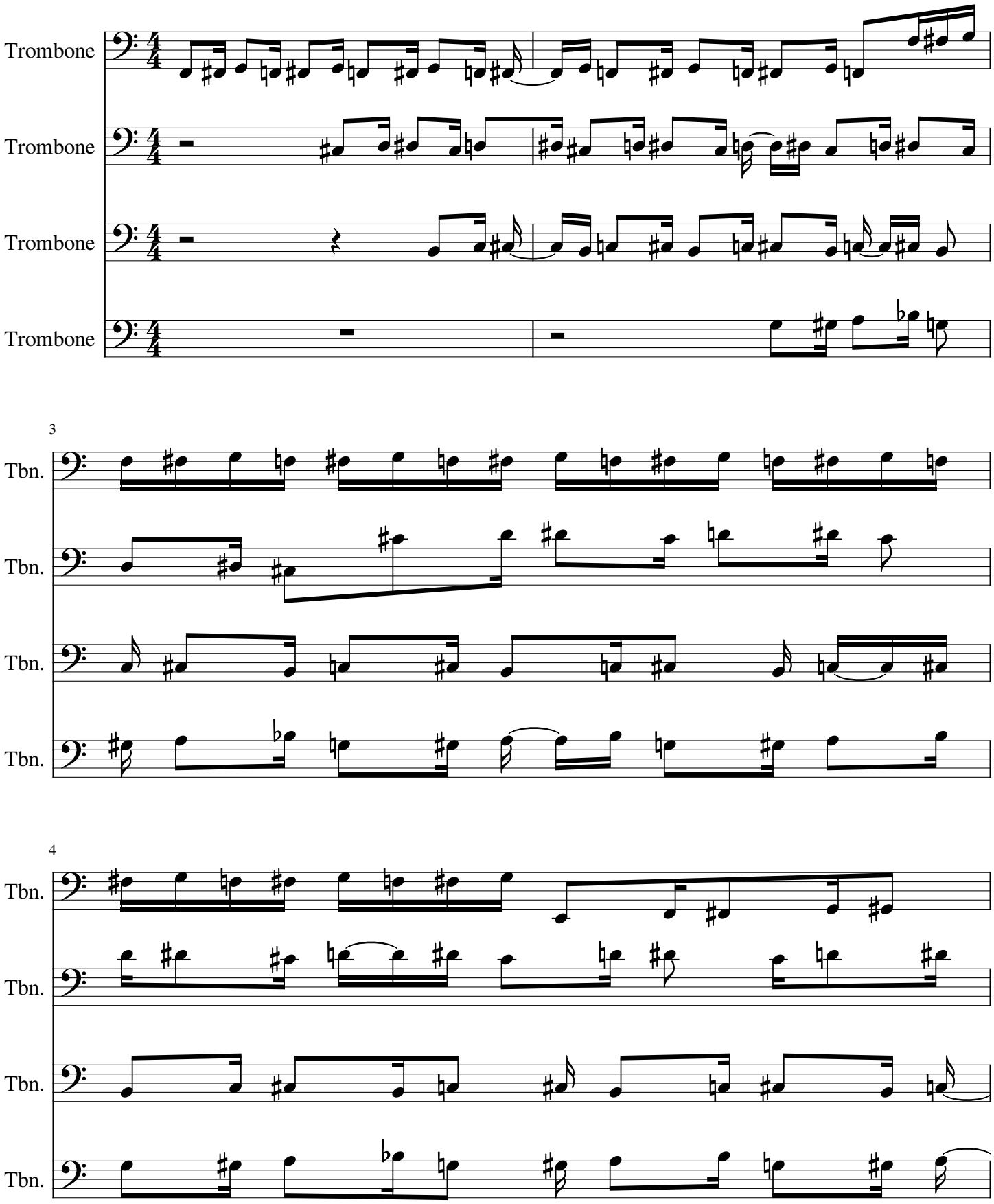
Three chords are played according to the talea. The rhythmical identity of the talea is hidden by the chosen envelope of the sound. Also the tempo changes suddenly and in random through out the piece. The chords can be played from all octaves.

Duration ≅ 40" (dependent on the random values of the tempo)

Piece for Computer and 4 Tromboni

Death on the Border-II (Moment)

Ali Riza SARAL



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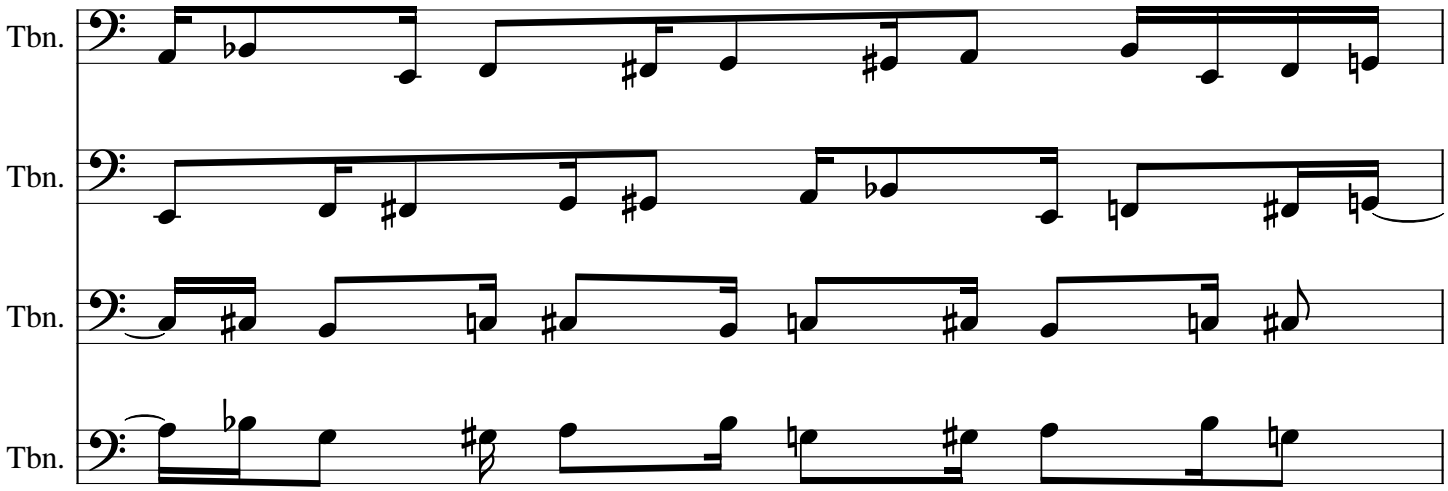

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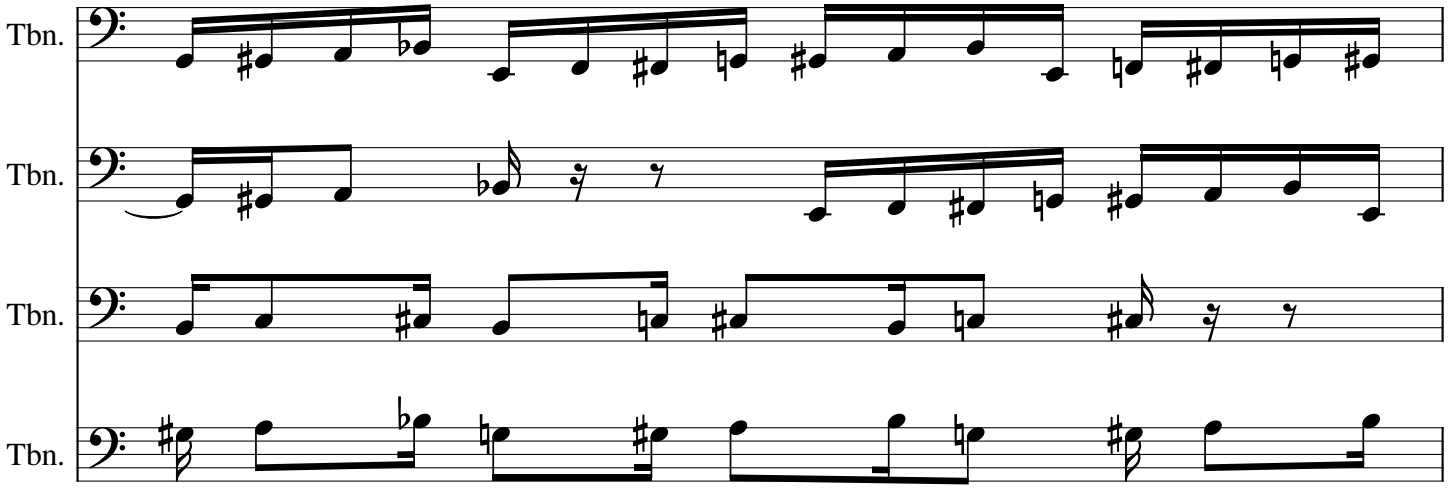

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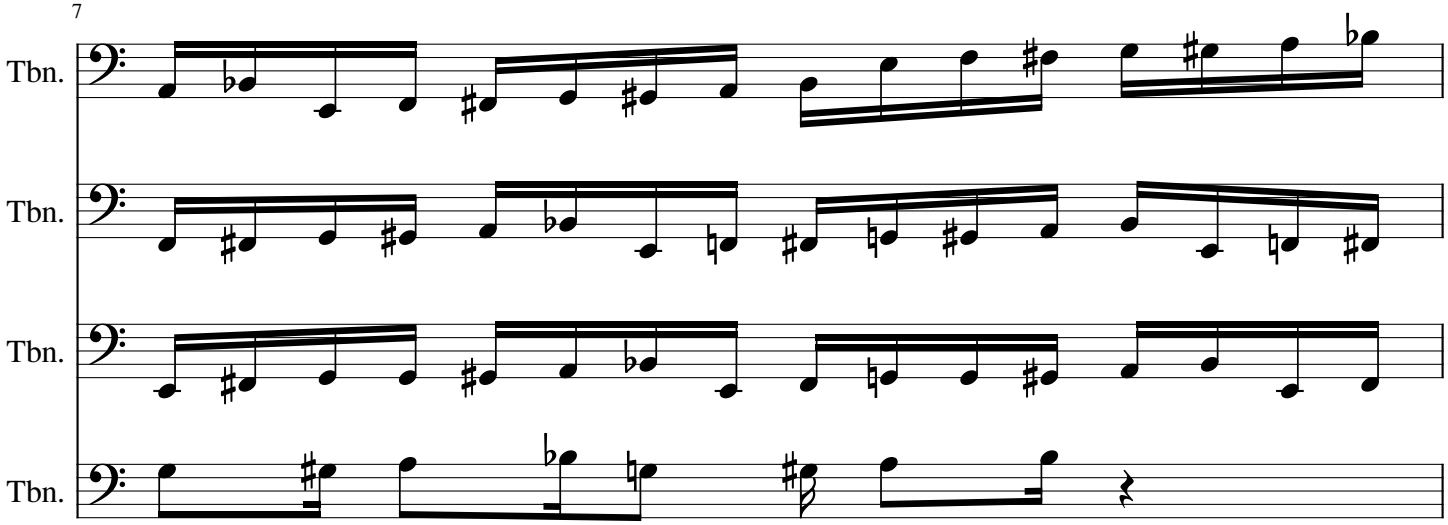
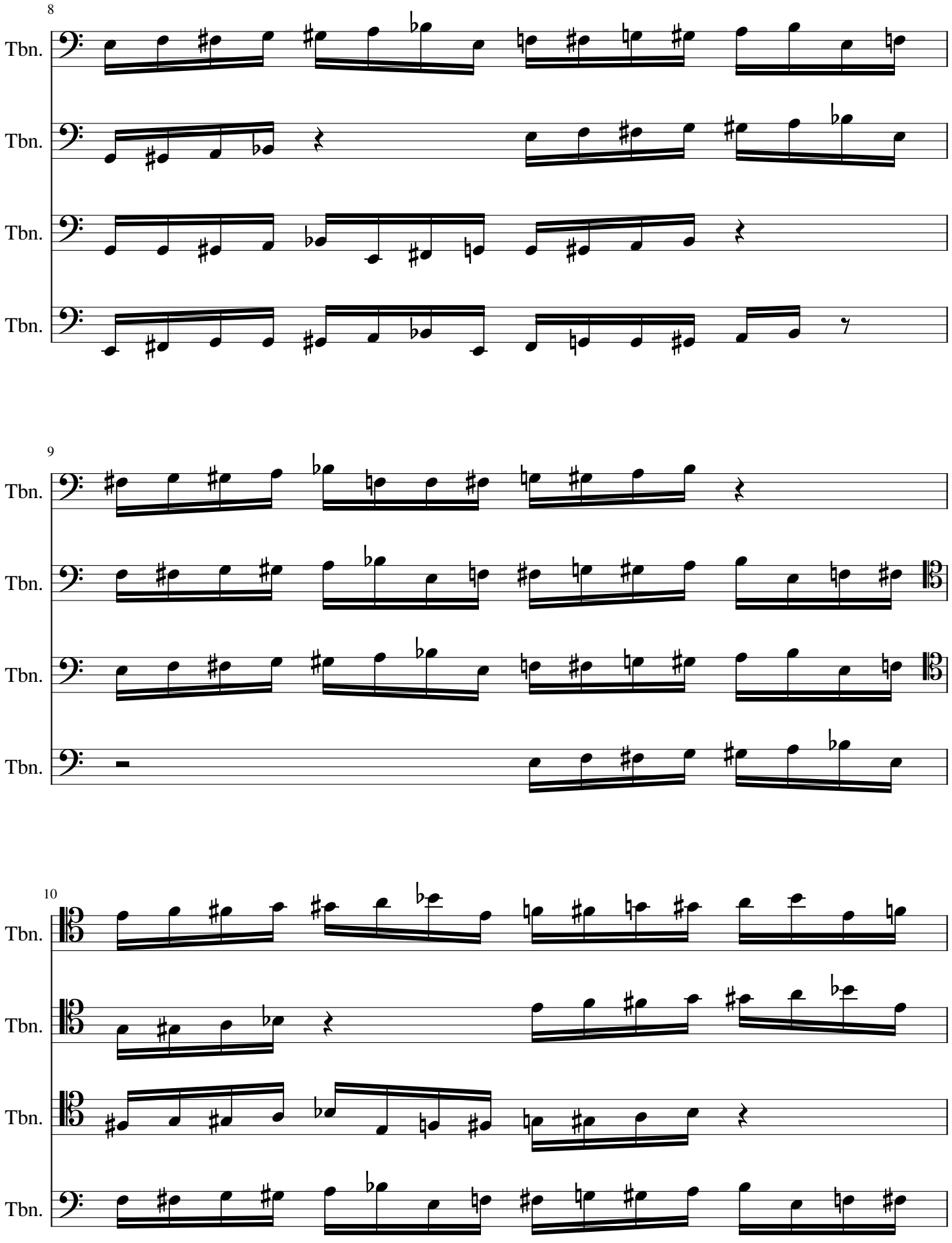
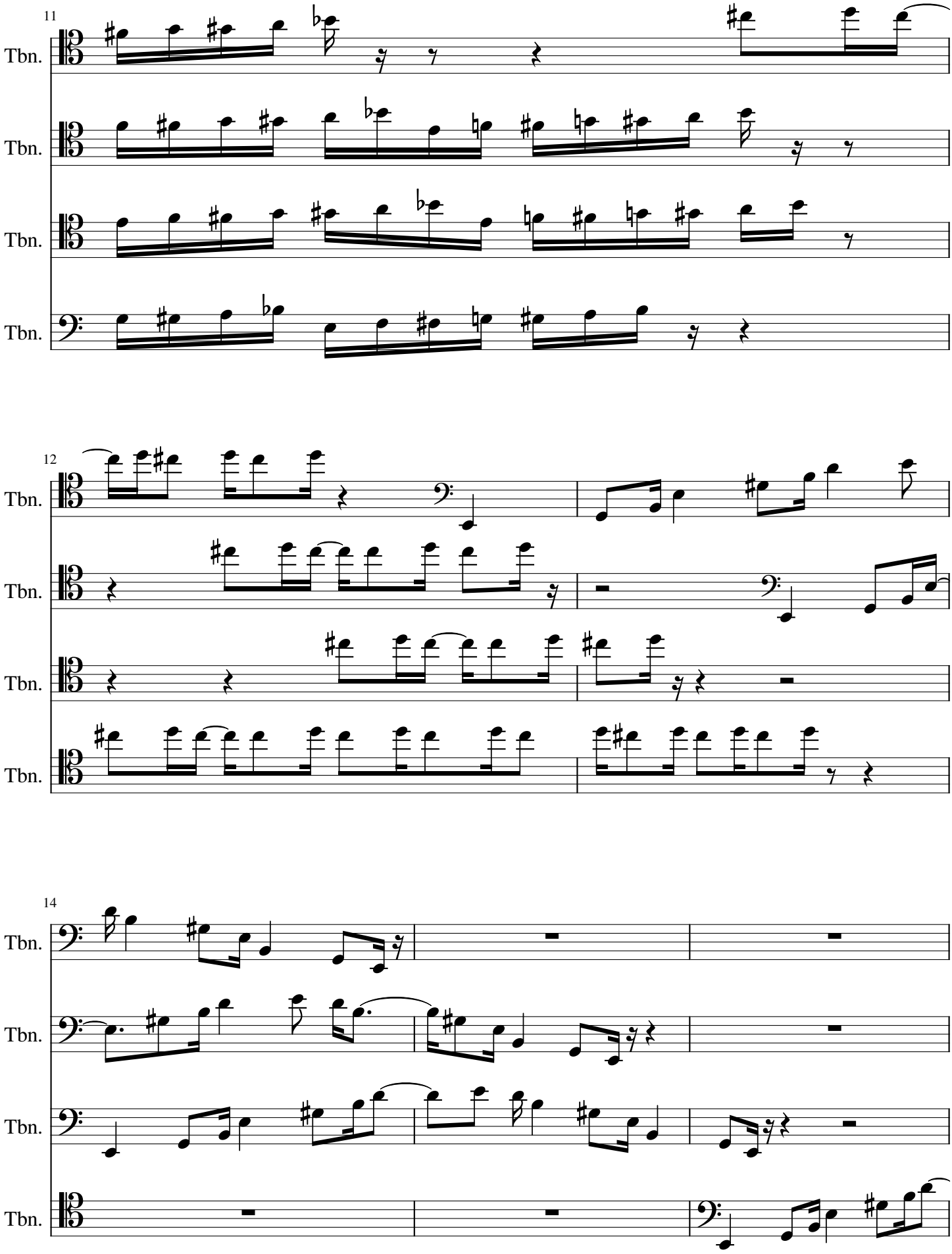
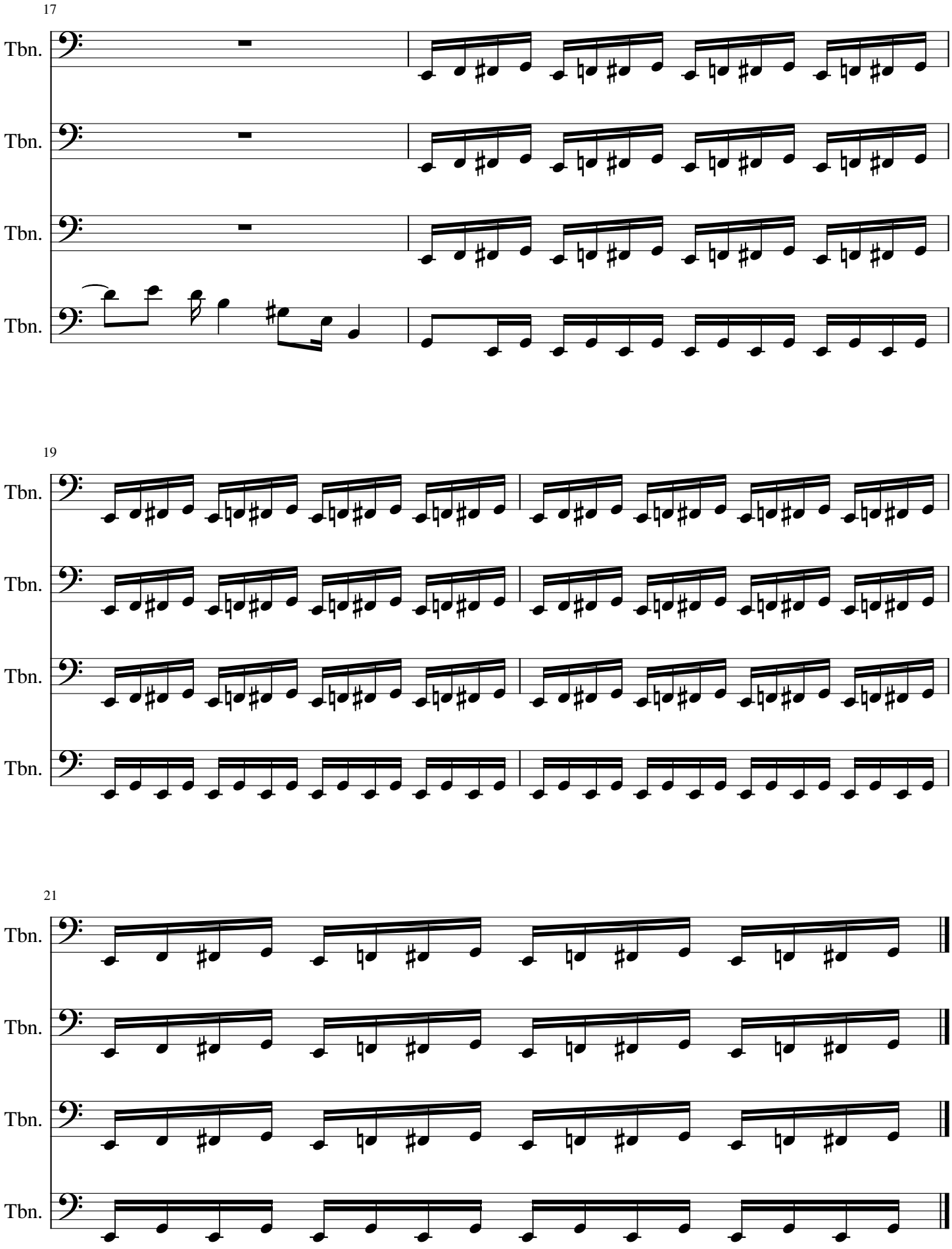



8
Tbn.
Tbn.
Tbn.
Tbn.
9
Tbn.
Tbn.
Tbn.
Tbn.
10
Tbn.
Tbn.
Tbn.
Tbn.


11
Tbn.
Tbn.
Tbn.
Tbn.
12
Tbn.
Tbn.
Tbn.
Tbn.
14
Tbn.
Tbn.
Tbn.
Tbn.

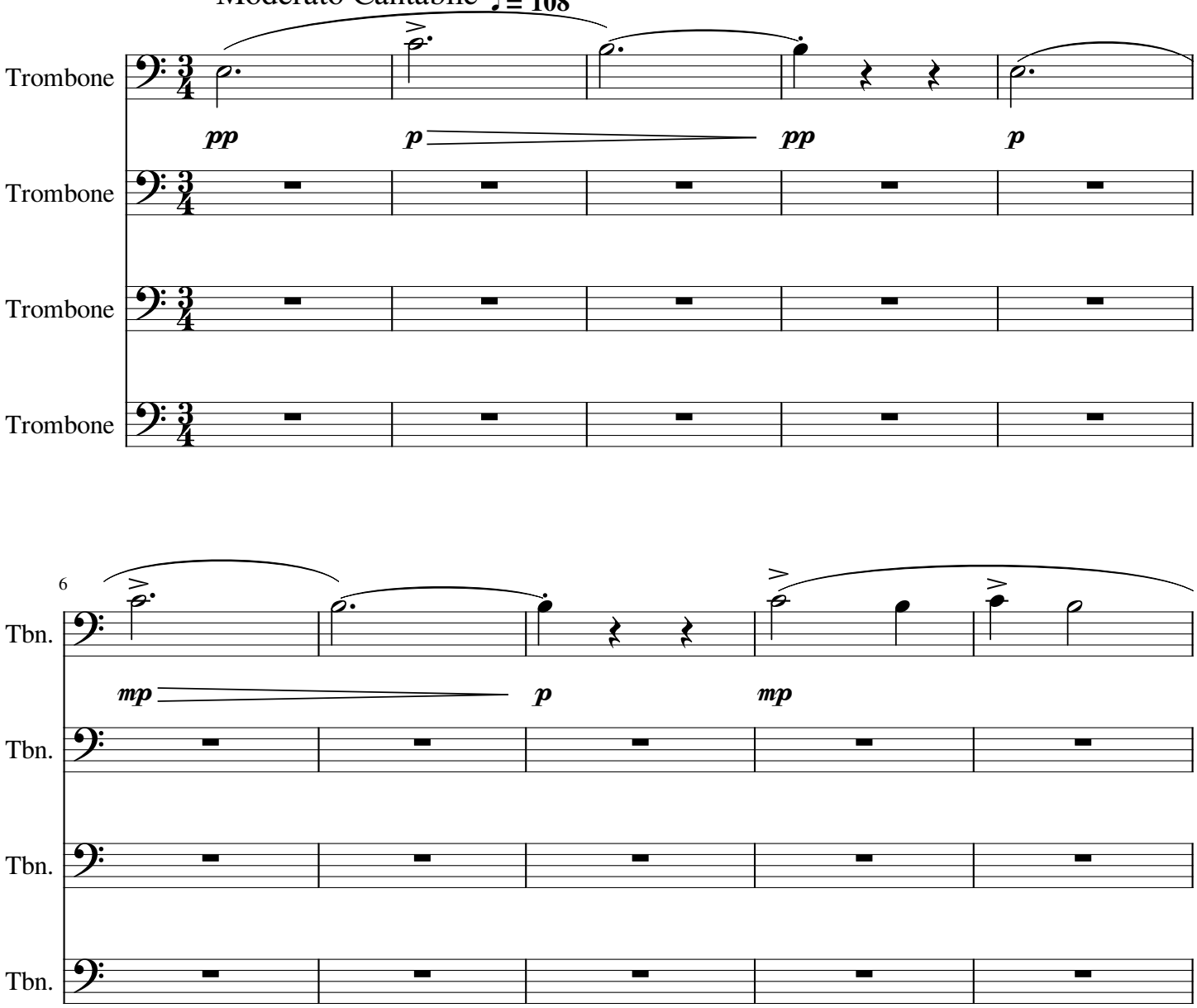

17
Tbn.
Tbn.
Tbn.
Tbn.
19
Tbn.
Tbn.
Tbn.
Tbn.
21
Tbn.
Tbn.
Tbn.
Tbn.

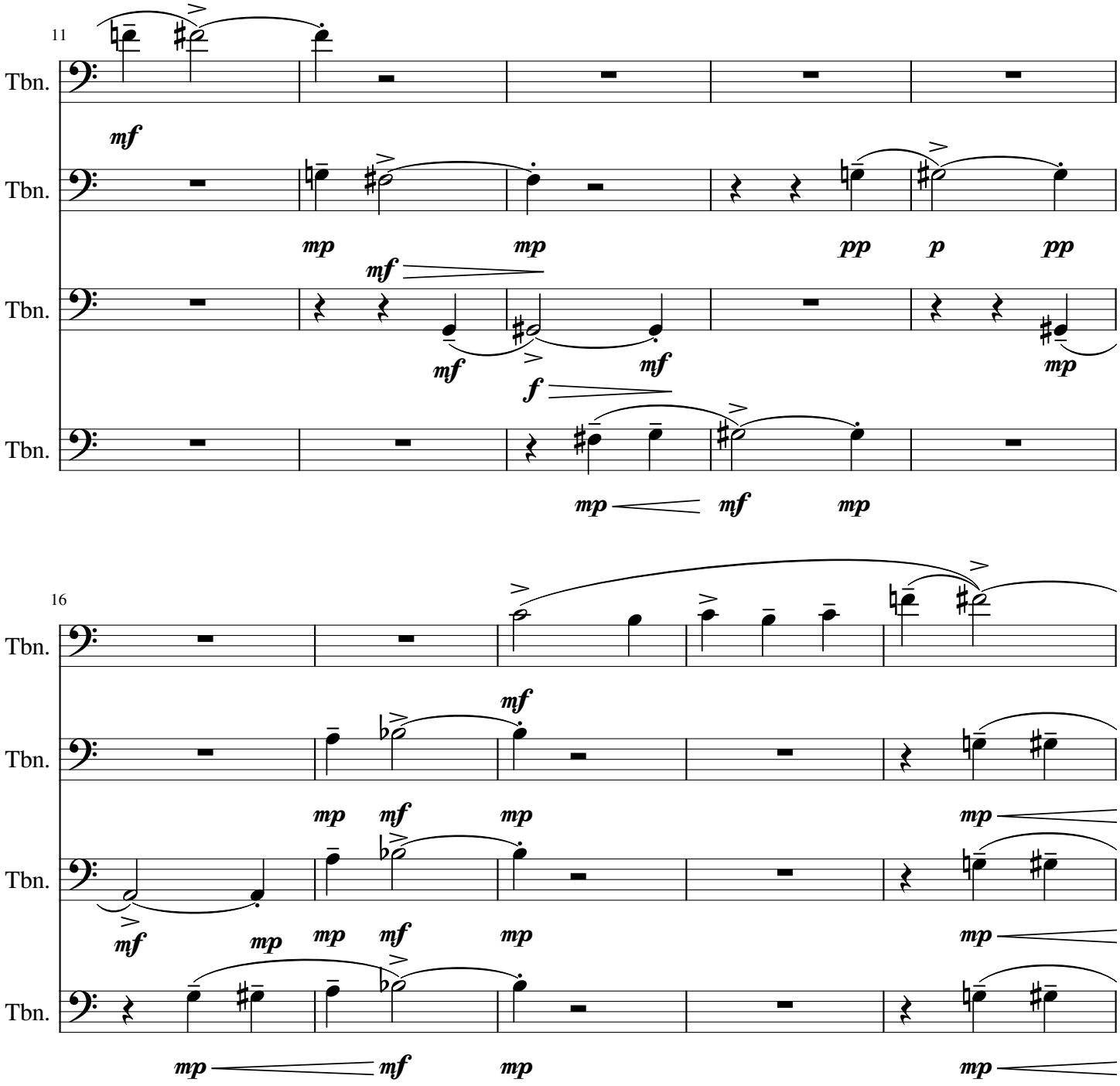
Piece for Computer and 4 Tromboni

Death on the Border - III (Yearning)

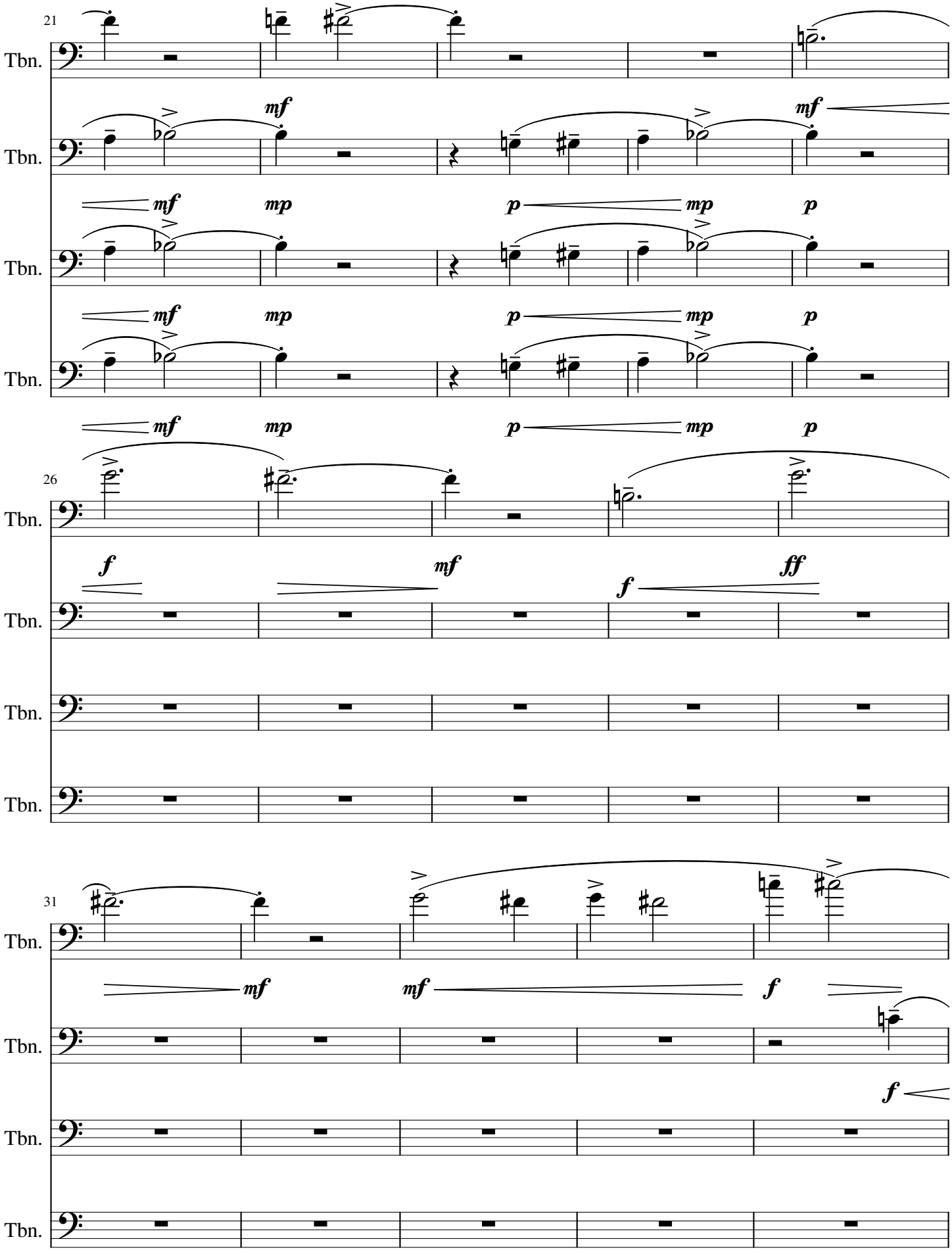
Ali Riza SARAL

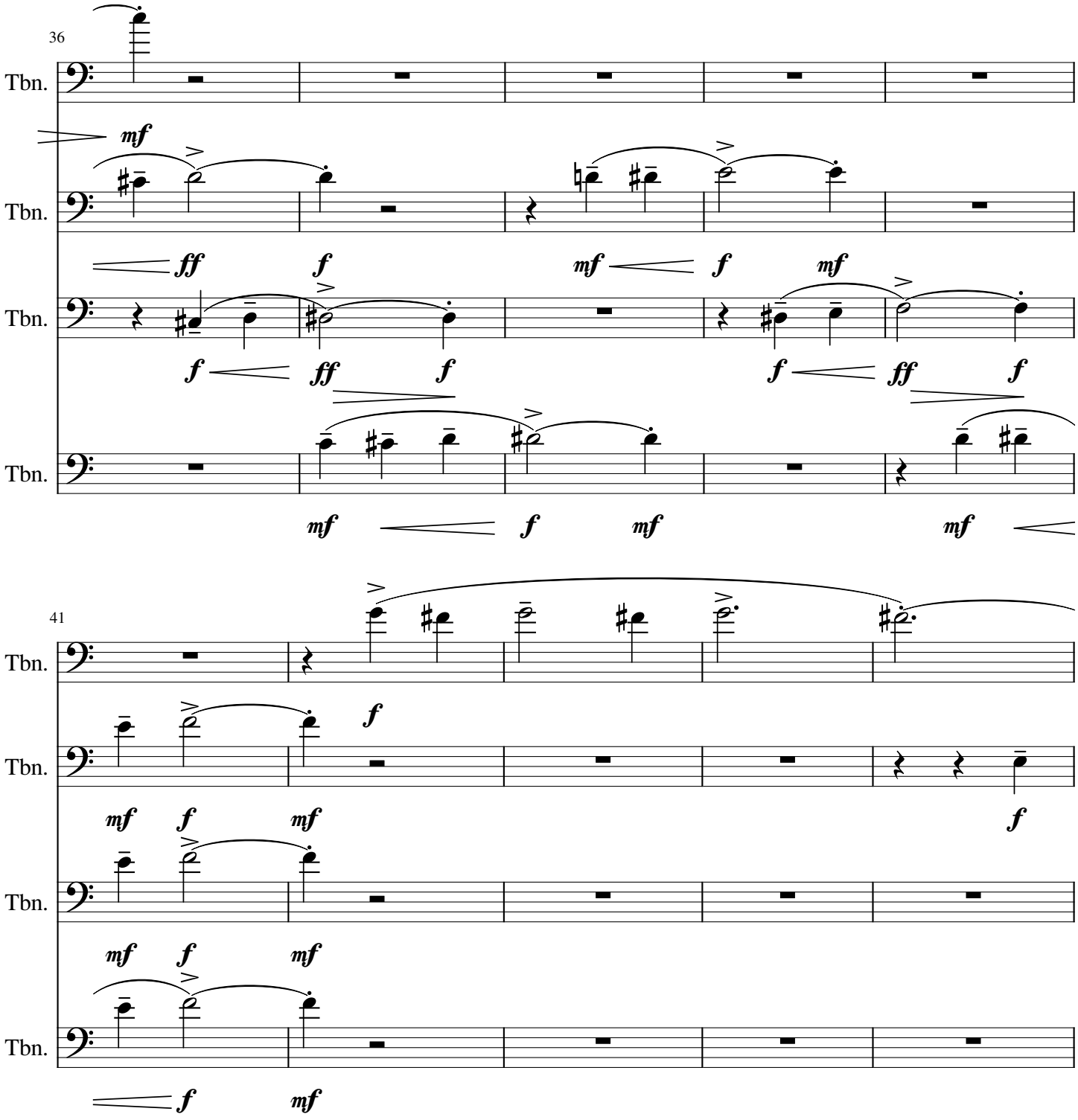
Moderato Cantabile ♩ = 108

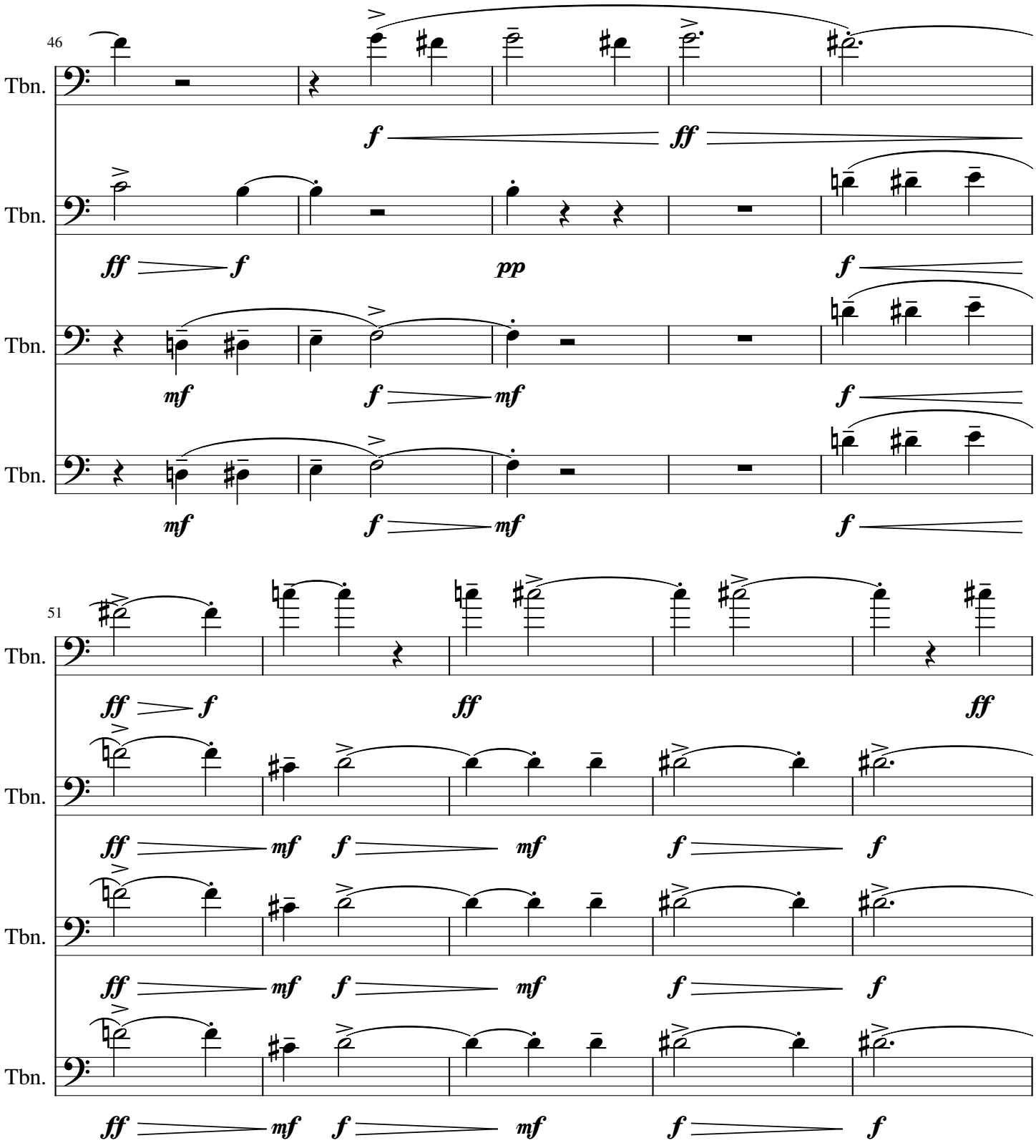


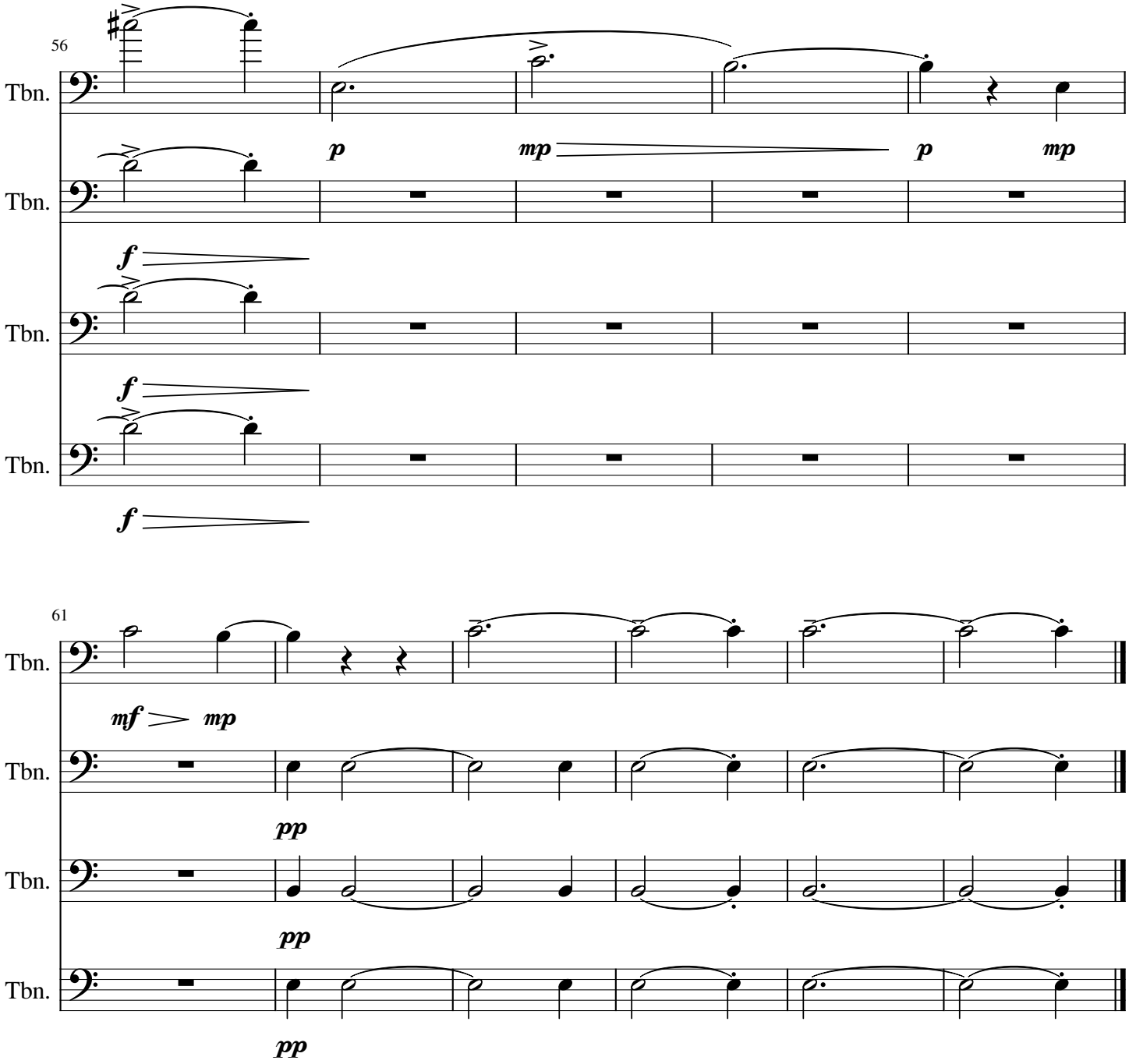

11
Tbn.
Tbn.
Tbn.
Tbn.
mf
mp
mp
pp
p
pp
mf
mf
mf
mp
f
mp
mf
mp

16
Tbn.
Tbn.
Tbn.
Tbn.
mf
mp
mf
mp
mp
mf
mp
mp
mp
mf
mp
mp
mf
mp
mp
mp
mf
mp
mp
mp


21
Tbn.
Tbn.
Tbn.
Tbn.
mf
mp
p
mp
p
26
Tbn.
Tbn.
Tbn.
f
mf
f
ff
31
Tbn.
Tbn.
Tbn.
Tbn.
mf
mf
f
f

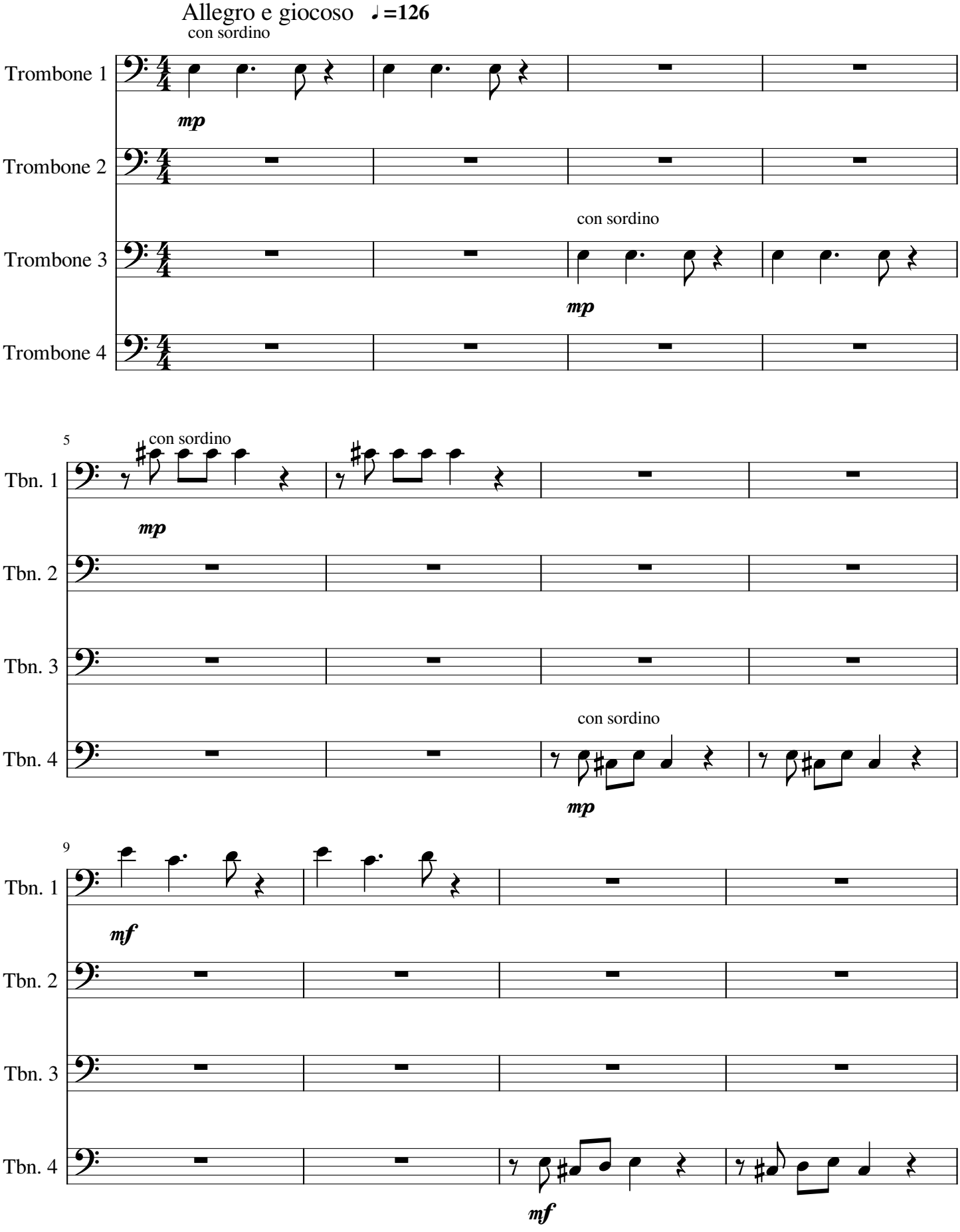

36
Tbn.
Tbn.
Tbn.
Tbn.
41
Tbn.
Tbn.
Tbn.
Tbn.

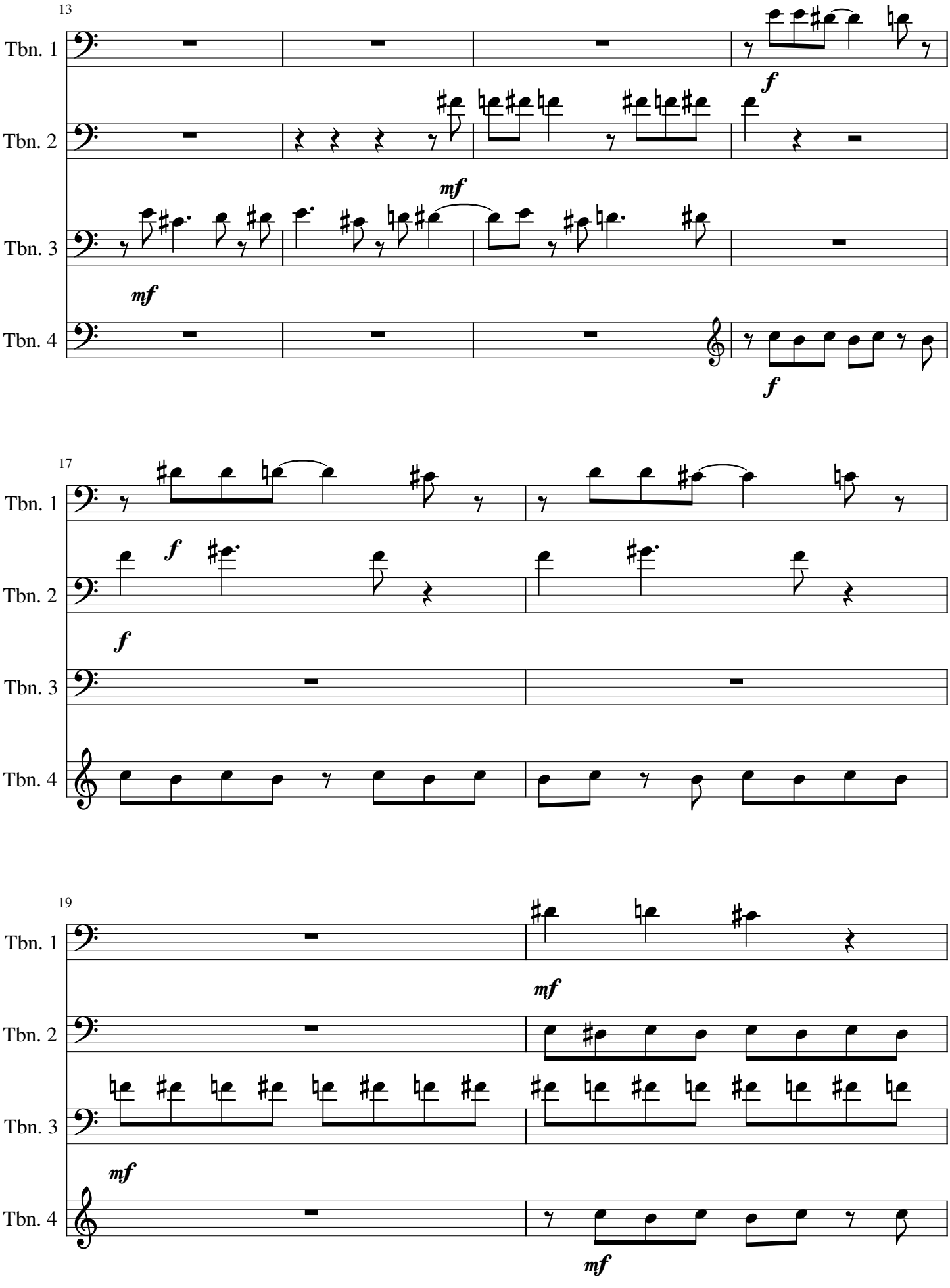

46
Tbn.
Tbn.
Tbn.
Tbn.
51
Tbn.
Tbn.
Tbn.
Tbn.

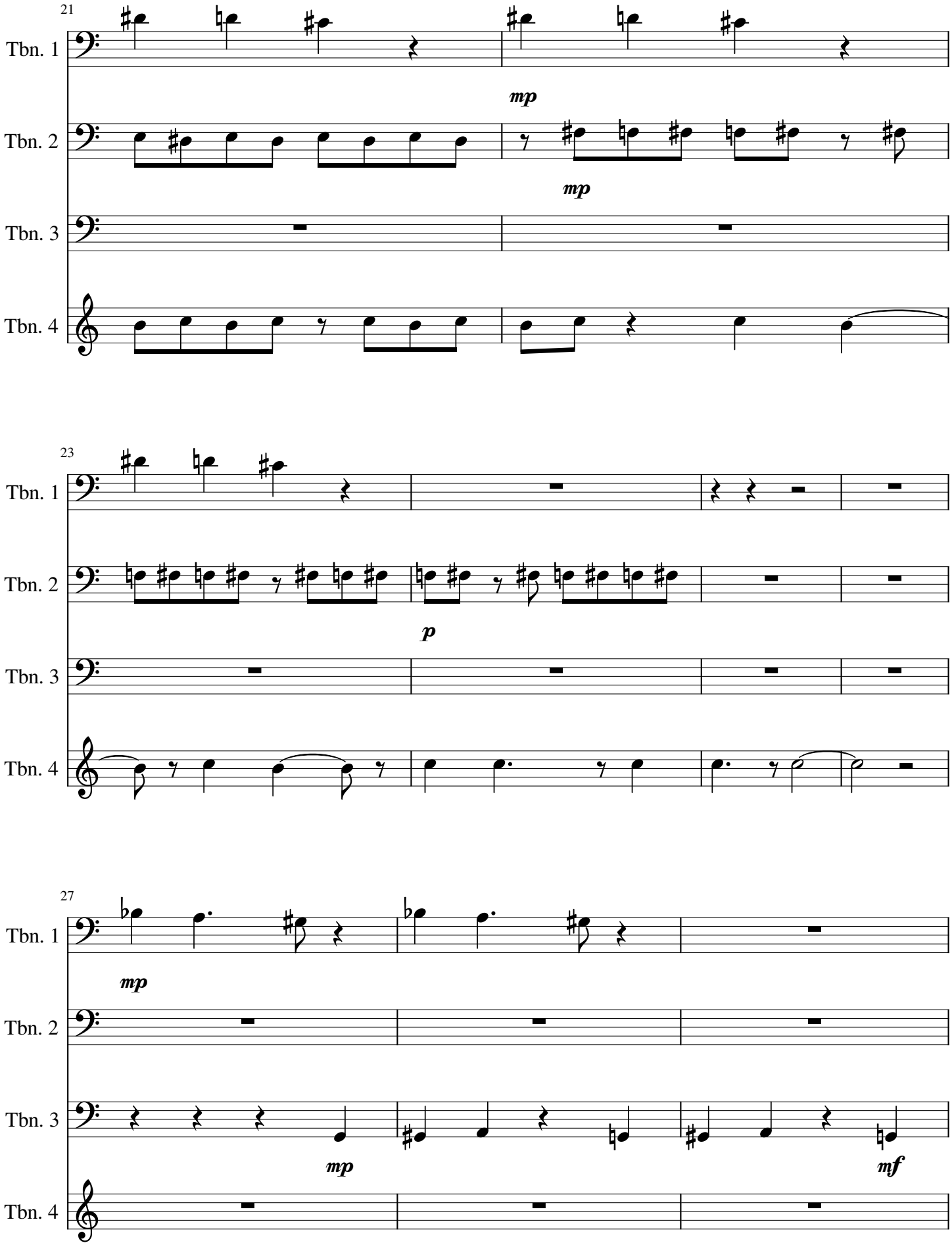

56
Tbn.
Tbn.
Tbn.
Tbn.
Tbn.
p
mp
p
mp
f
f
f
61
Tbn.
Tbn.
Tbn.
Tbn.
mf
mp
pp
pp
pp

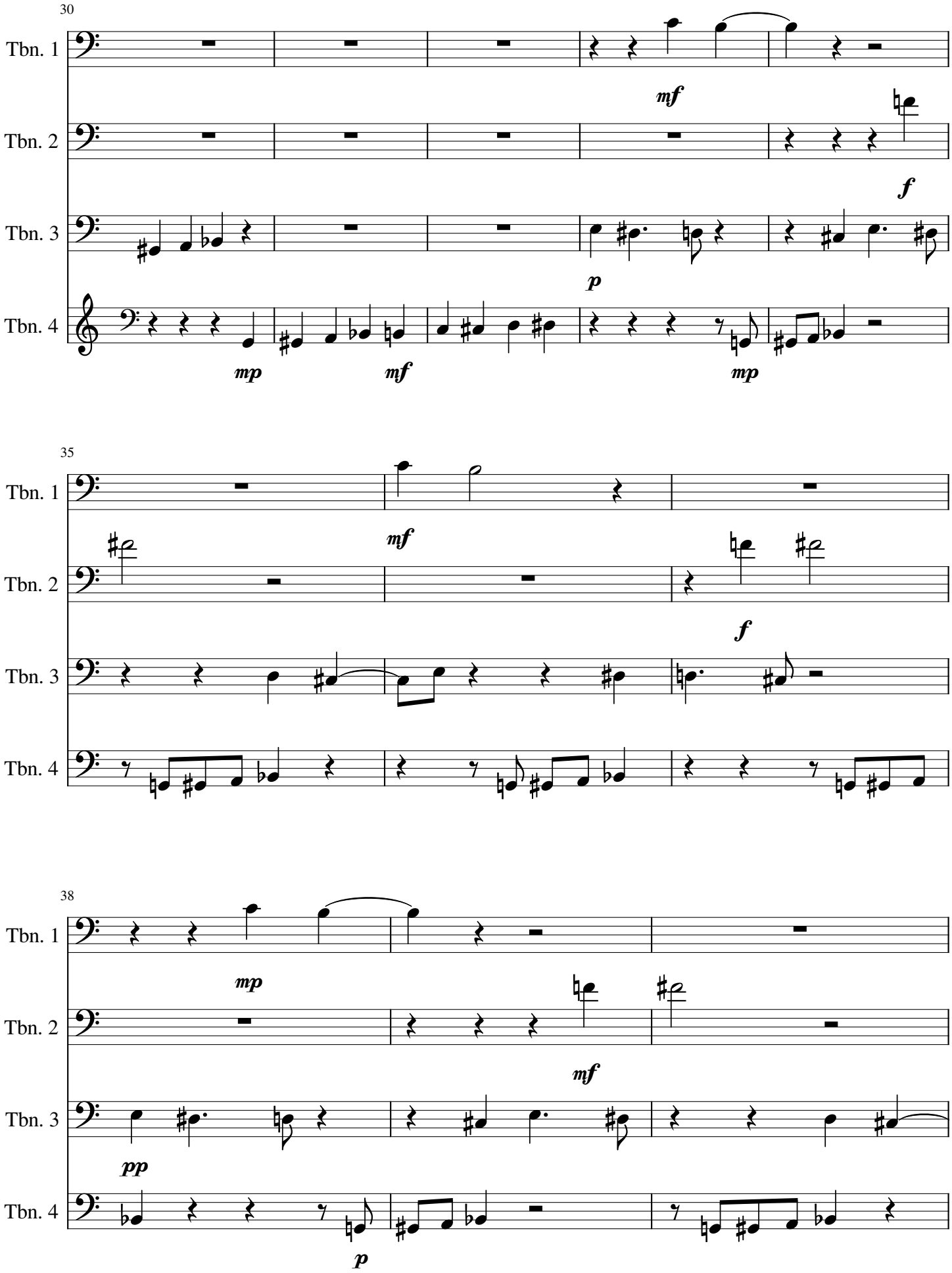
Piece for Computer and 4 Tromboni

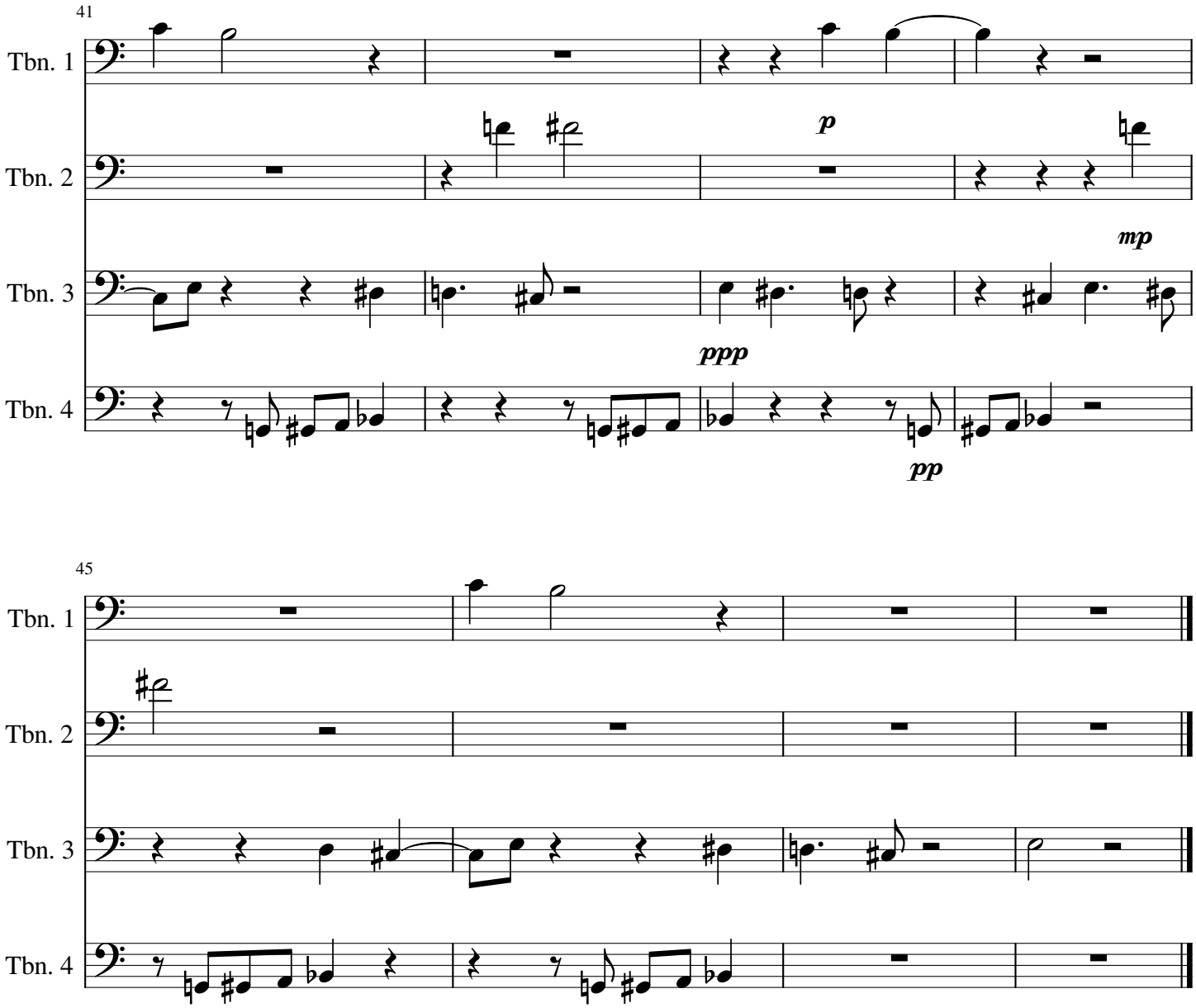
Death on the Border - IV (Ritual)




13
Tbn. 1
Tbn. 2
Tbn. 3
Tbn. 4
f
mf
mf
f
17
Tbn. 1
Tbn. 2
Tbn. 3
Tbn. 4
f
f
19
Tbn. 1
Tbn. 2
Tbn. 3
Tbn. 4
mf
mf
mf


21
Tbn. 1
Tbn. 2
Tbn. 3
Tbn. 4
mp
mp
23
Tbn. 1
Tbn. 2
Tbn. 3
Tbn. 4
p
27
Tbn. 1
Tbn. 2
Tbn. 3
Tbn. 4
mp
mp
mf


30
Tbn. 1
Tbn. 2
Tbn. 3
Tbn. 4
mf
f
p
mp
mf
mp
35
Tbn. 1
Tbn. 2
Tbn. 3
Tbn. 4
mf
f
38
Tbn. 1
Tbn. 2
Tbn. 3
Tbn. 4
mp
mf
pp
p

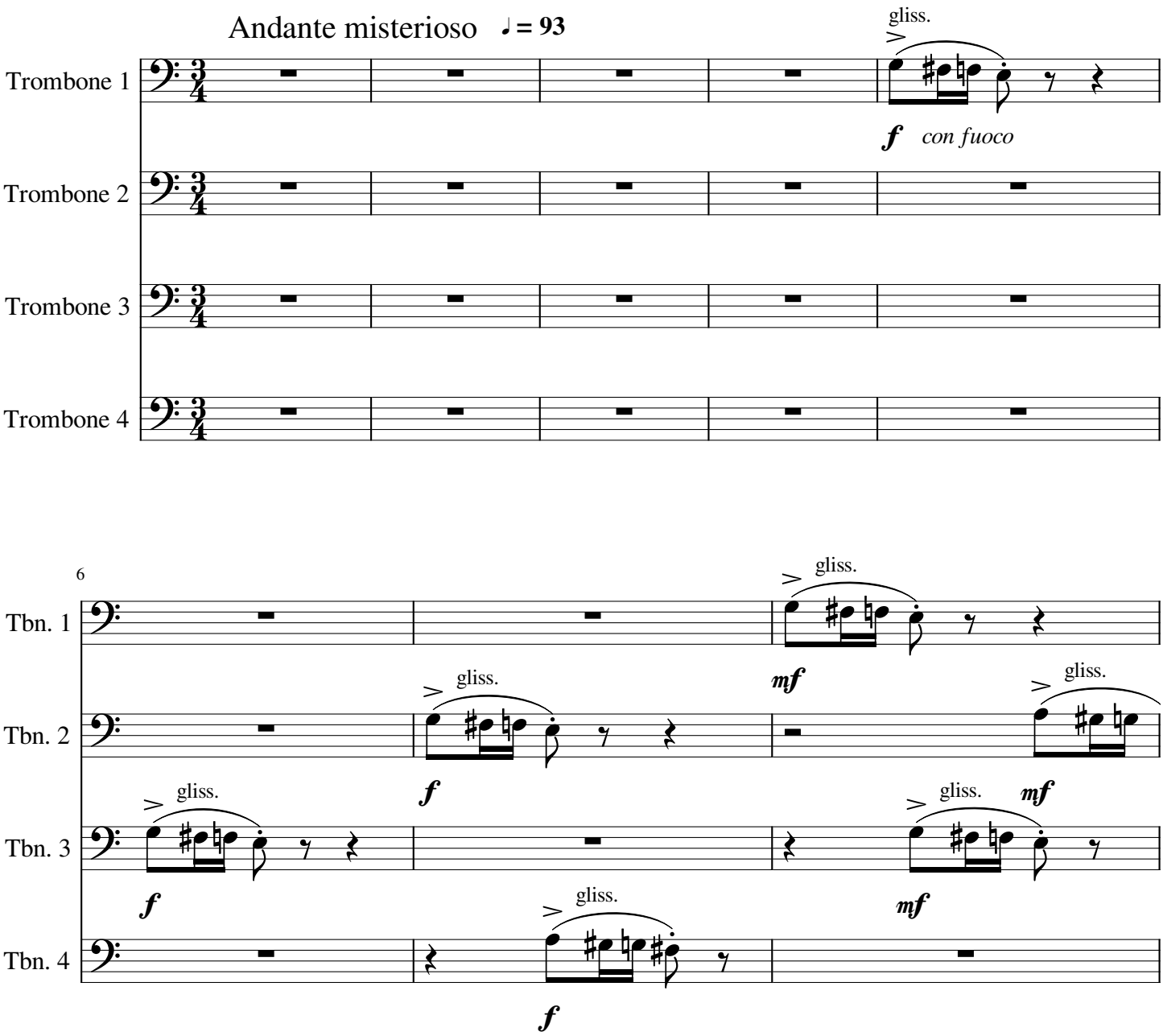

41
Tbn. 1
Tbn. 2
Tbn. 3
Tbn. 4
p
mp
ppp
pp

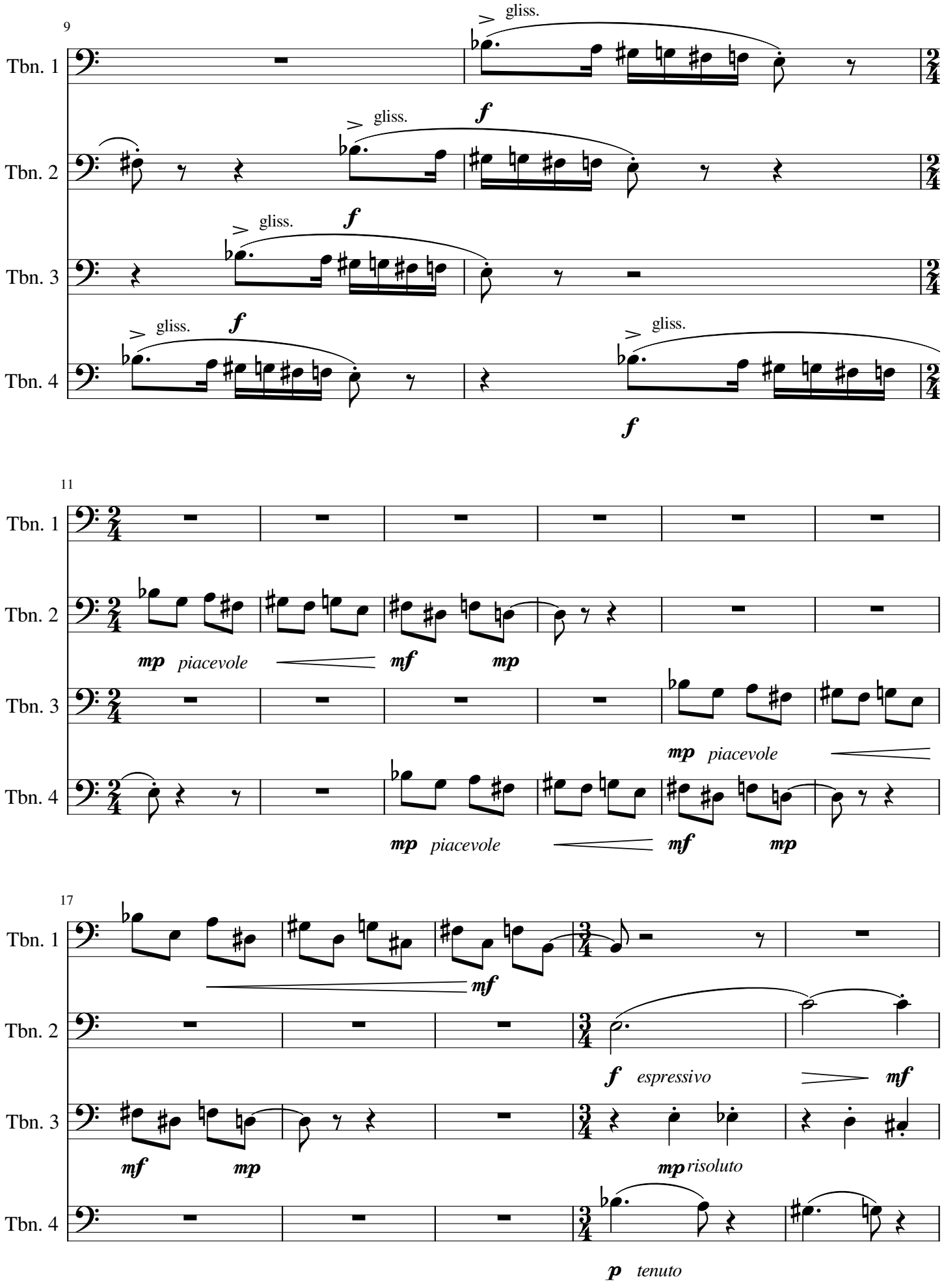
45
Tbn. 1
Tbn. 2
Tbn. 3
Tbn. 4

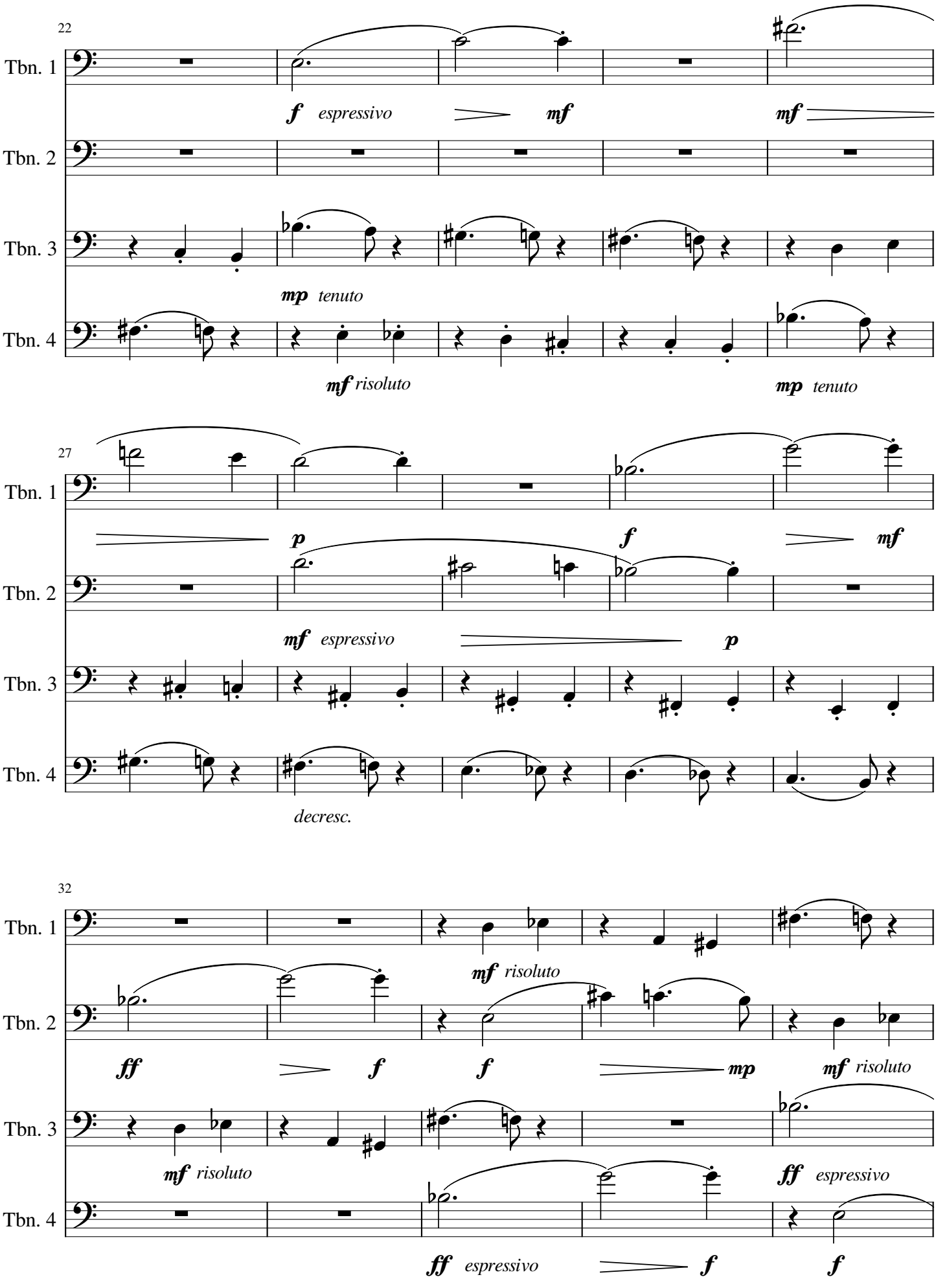
Piece for Computer and 4 Tromboni

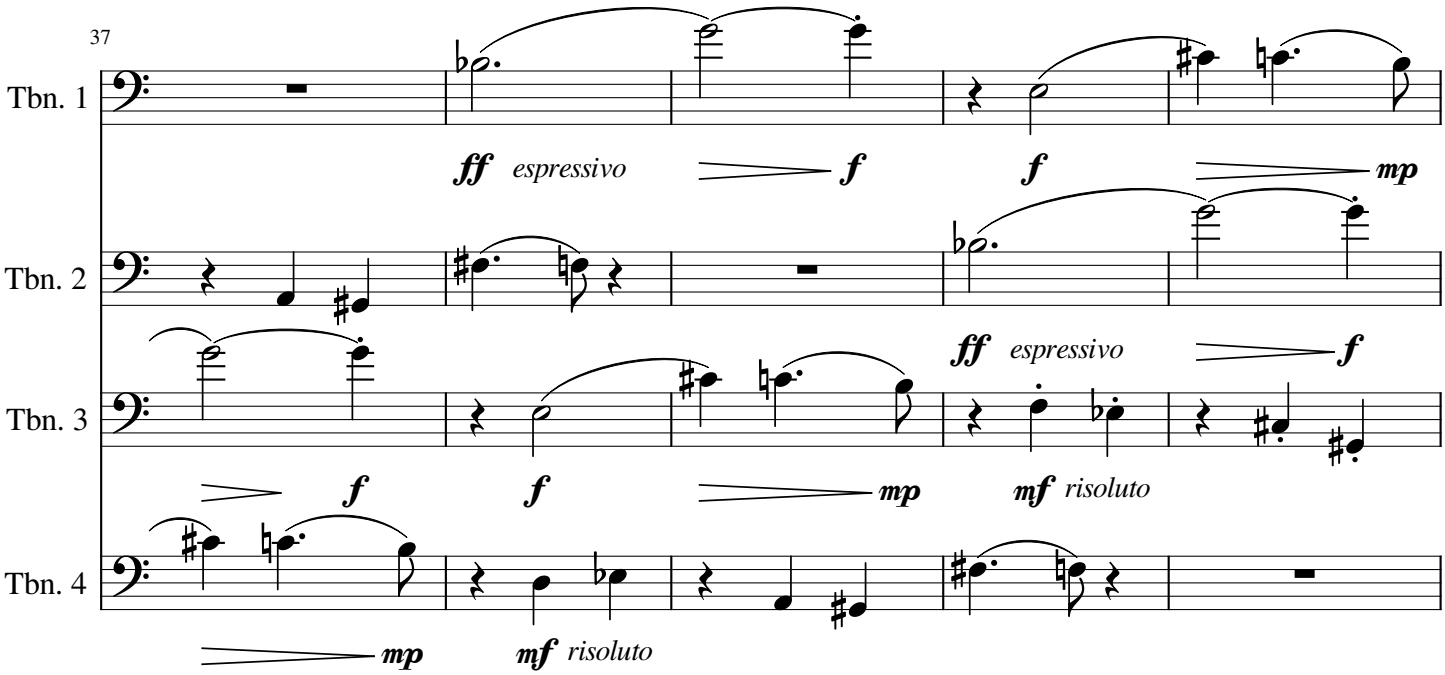
Death on the Border - V (Oblation)

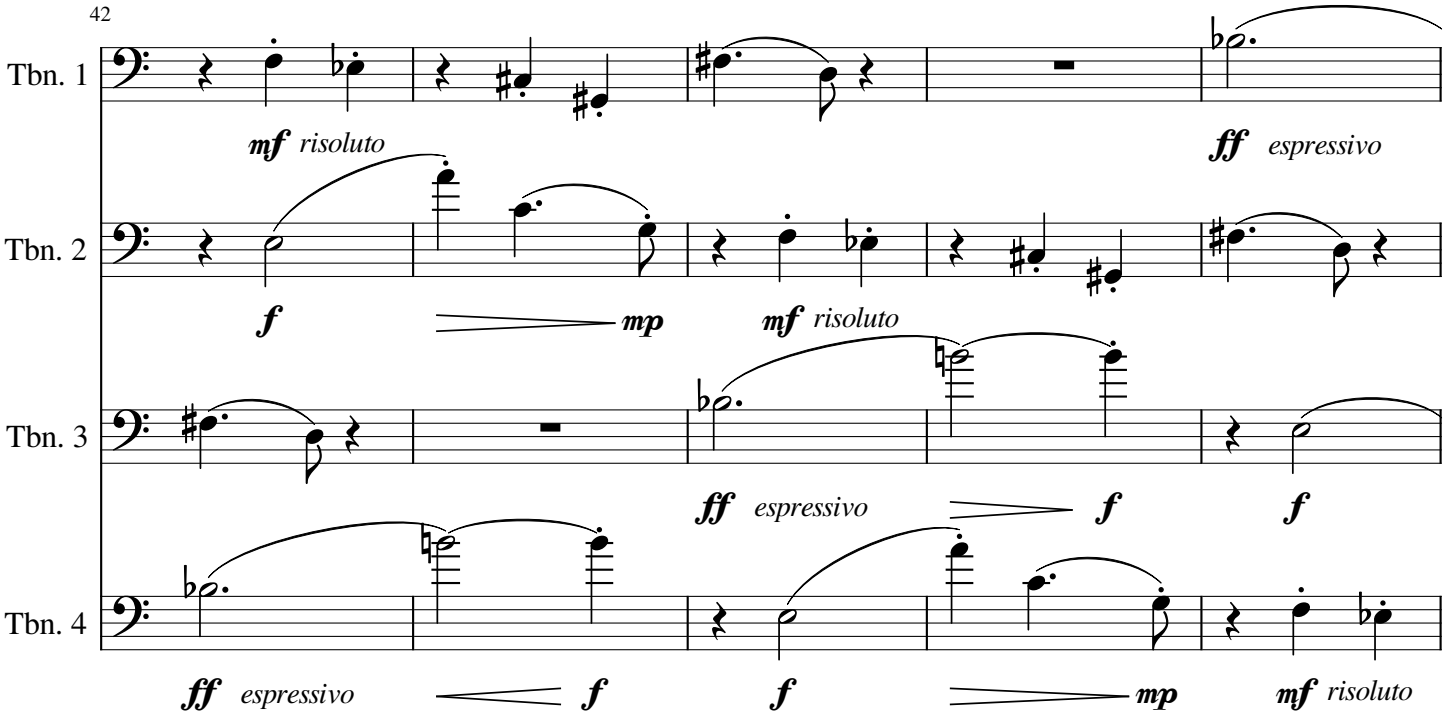
Ali Riza SARAL

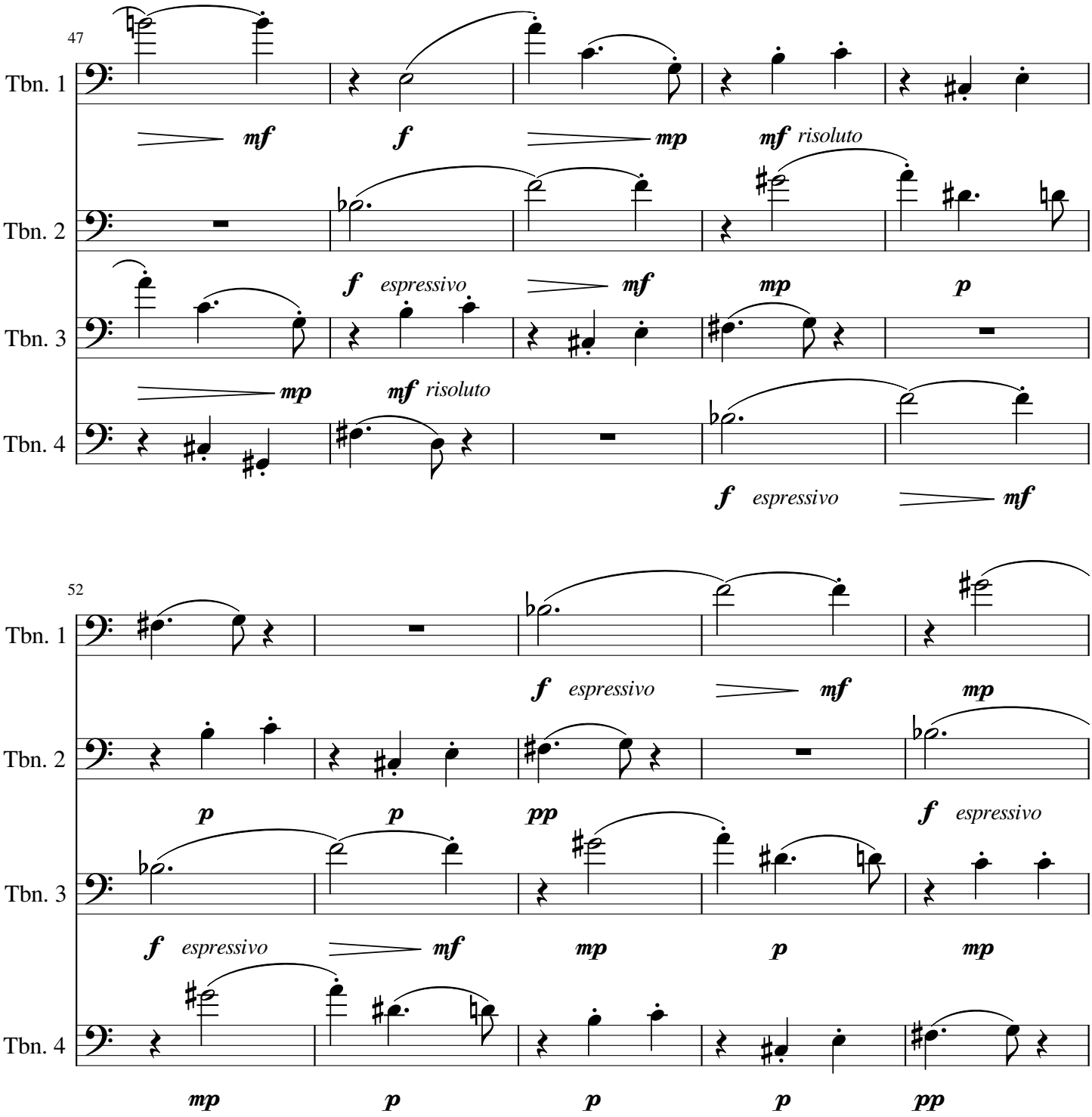


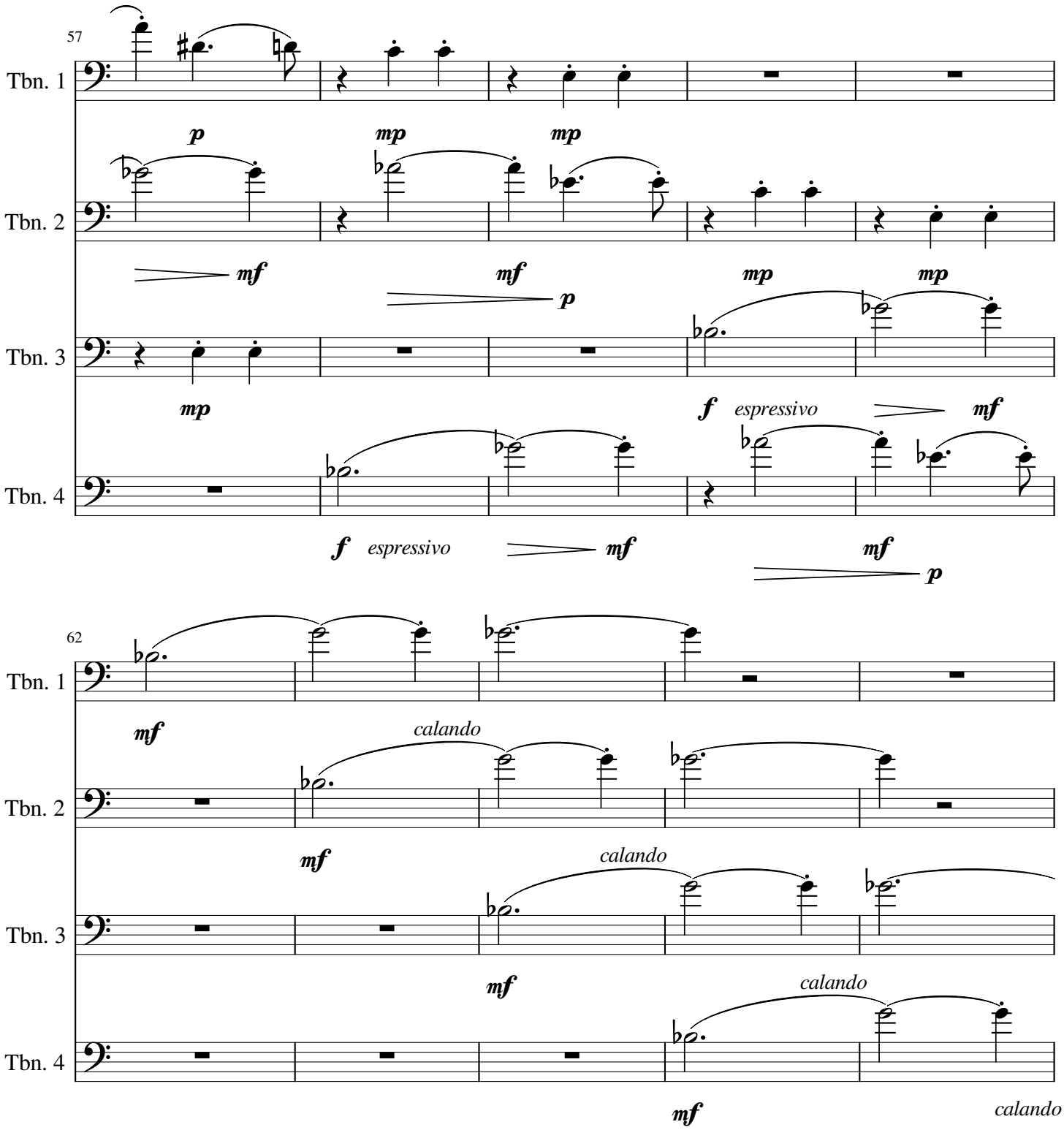

9
Tbn. 1
Tbn. 2
Tbn. 3
Tbn. 4
gliss.
f
11
mp piacevole
mf
mp
17
espressivo
risoluto
tenuto


22
Tbn. 1
Tbn. 2
Tbn. 3
Tbn. 4
f espressivo
mf
mf
mp tenuto
mf risoluto
mp tenuto
27
Tbn. 1
Tbn. 2
Tbn. 3
Tbn. 4
p
f
mf
mf espressivo
p
decresc.
32
Tbn. 1
Tbn. 2
Tbn. 3
Tbn. 4
mf risoluto
ff
f
f
mp
mf risoluto
mf risoluto
ff espressivo
ff espressivo
f
f

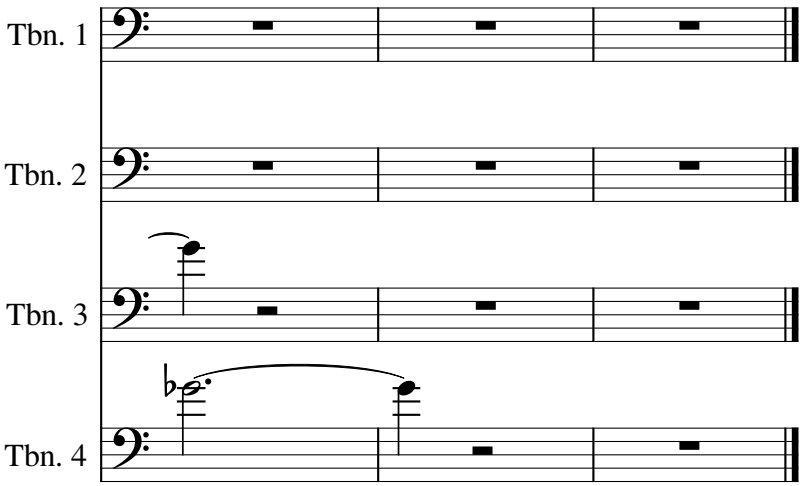

37
Tbn. 1
Tbn. 2
Tbn. 3
Tbn. 4
ff espressivo
f
f
mp
ff espressivo
f
f
f
mp
mf risoluto
mp
mf risoluto


42
Tbn. 1
Tbn. 2
Tbn. 3
Tbn. 4
mf risoluto
ff espressivo
f
mp
mf risoluto
ff espressivo
f
f
ff espressivo
f
mp
mf risoluto


47
Tbn. 1
Tbn. 2
Tbn. 3
Tbn. 4
mf
f
mp
mf risoluto
f espressivo
mf
mp
p
mp
mf risoluto
f espressivo
mf
52
Tbn. 1
Tbn. 2
Tbn. 3
Tbn. 4
f espressivo
mf
mp
p
p
pp
f espressivo
f espressivo
mf
mp
p
mp
mp
p
p
p
pp


57
Tbn. 1
Tbn. 2
Tbn. 3
Tbn. 4
p
mp
mp
mf
mf
p
mp
mp
mp
f espressivo
mf
f espressivo
mf
mf
p
62
Tbn. 1
Tbn. 2
Tbn. 3
Tbn. 4
mf
calando
mf
calando
mf
calando
mf
calando

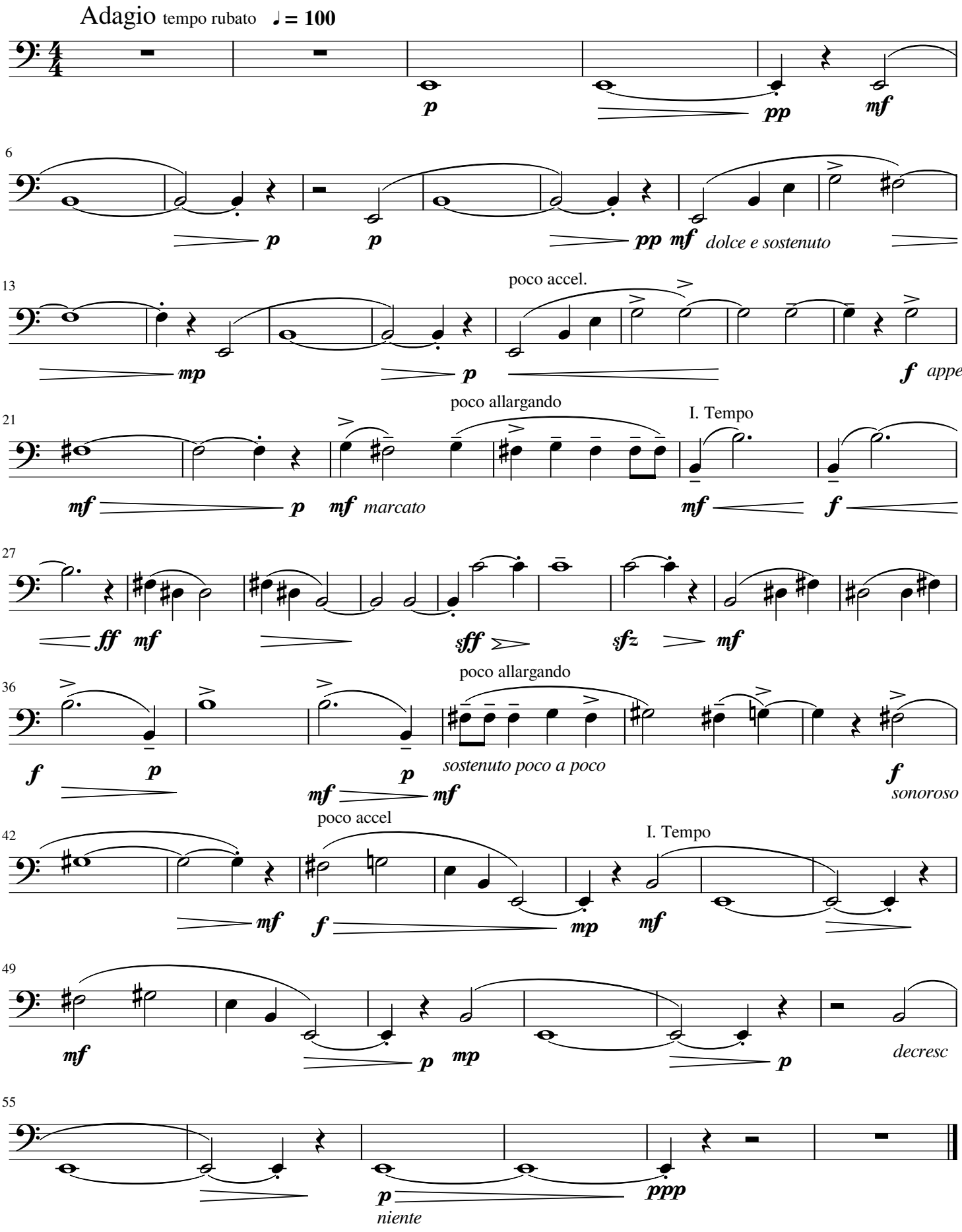
67



Piece for Computer and Tromboni

Death on the Border - VI (Lamentation)

Ali Riza SARAL



Trombone 1

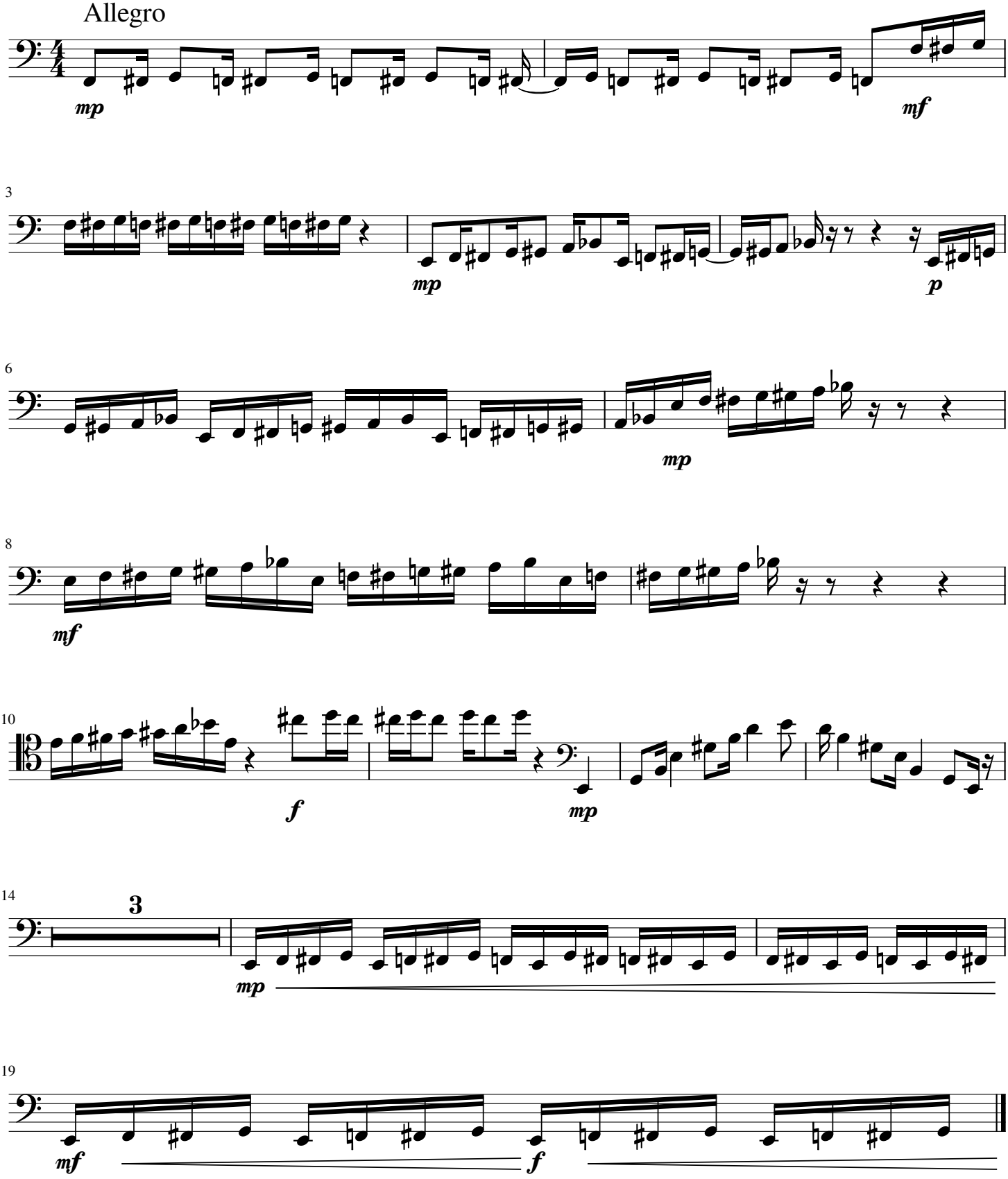
Piece for Computer and 4 Tromboni

Death on the Border-II (Moment)

Ali Riza SARAL

♩ = 120

Allegro



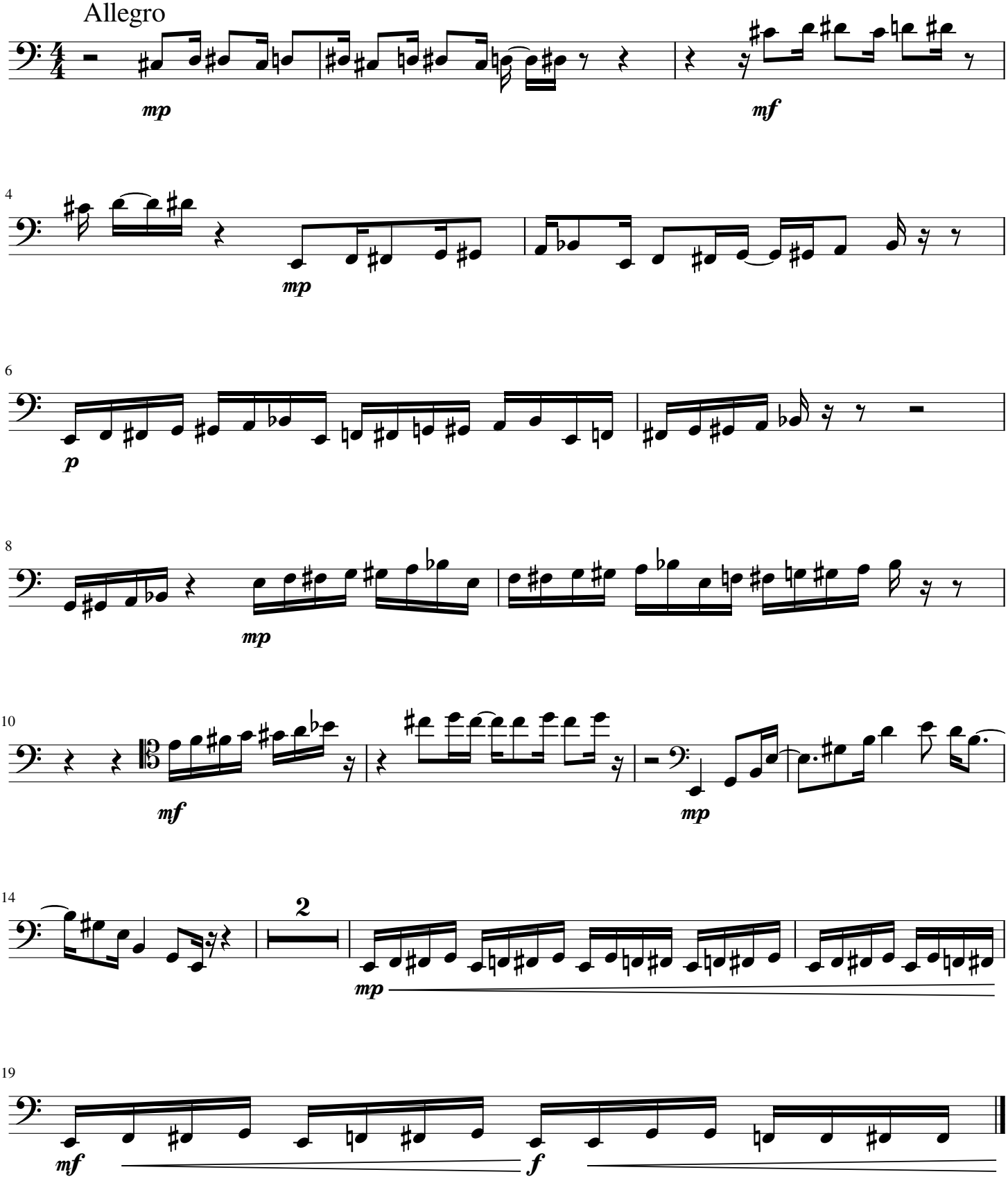
Trombone 2 Piece for Computer and 4 Tromboni

Death on the Border-II (Moment)

Ali Riza SARAL

♩ = 120

Allegro



Trombone 3

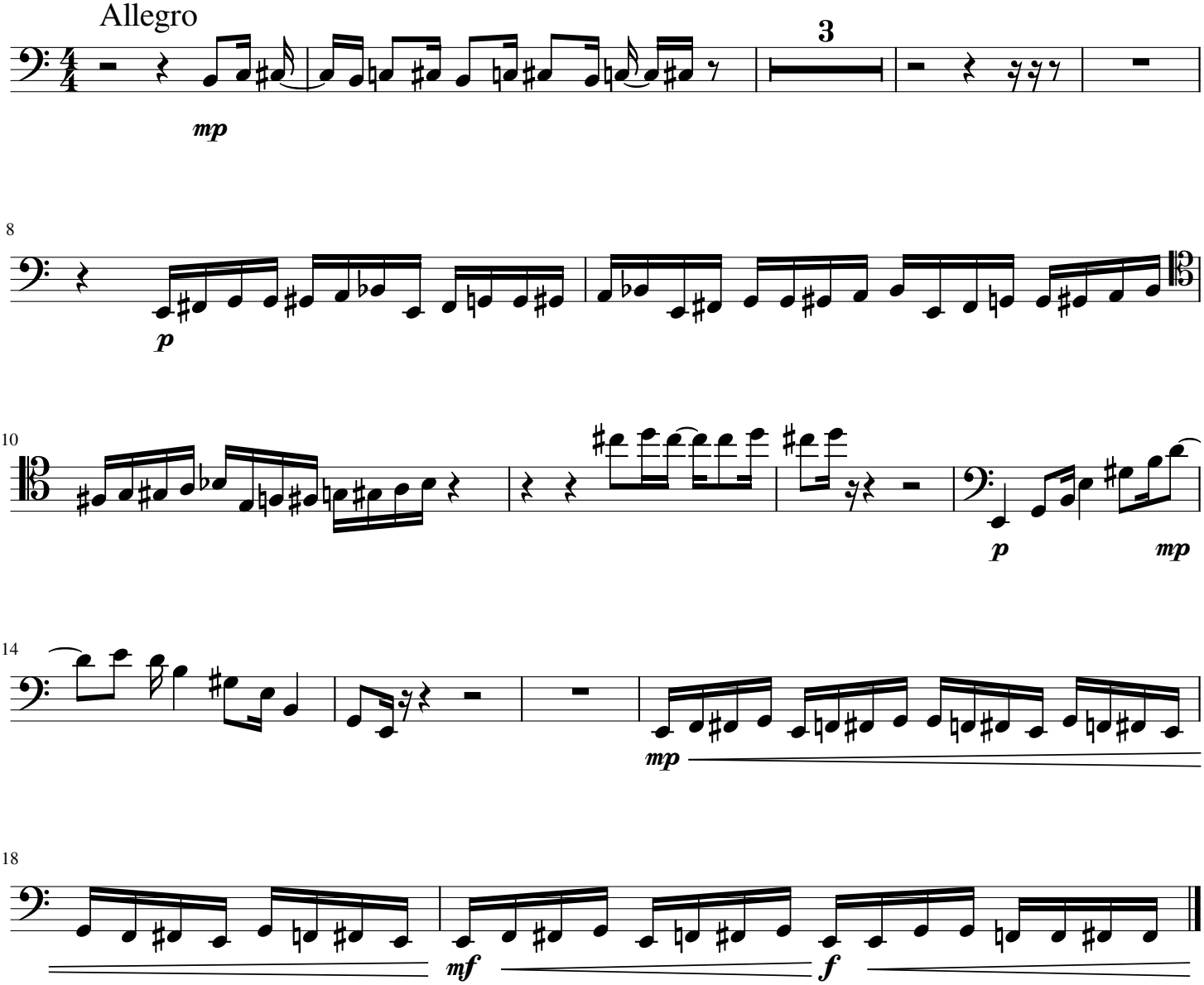
Piece for Computer and 4 Tromboni

Death on the Border-II (Moment)

Ali Riza SARAL

♩ = 120

Allegro



Trombone 4

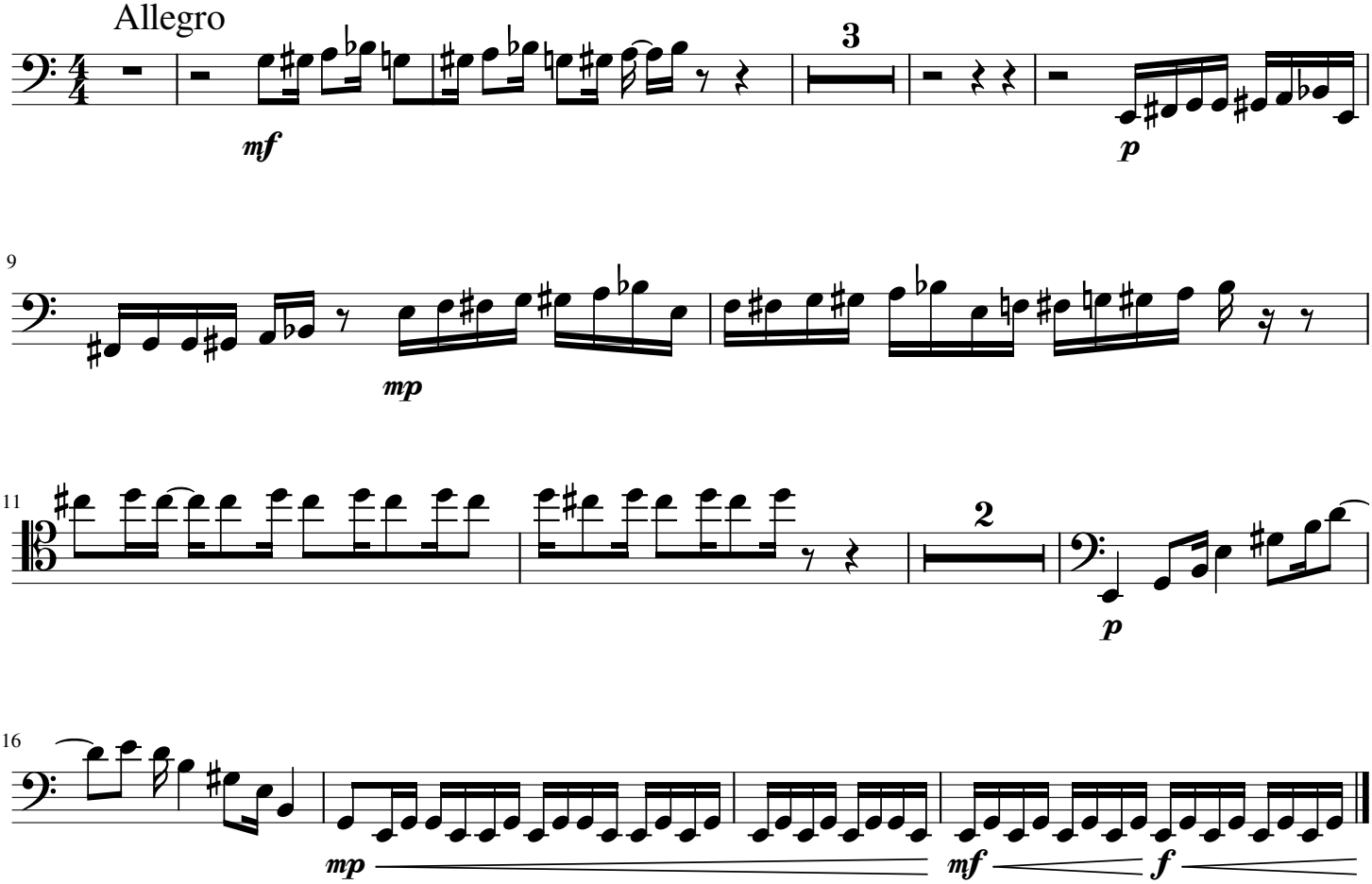
Piece for Computer and 4 Tromboni

Death on the Border-II (Moment)

Ali Riza SARAL

♩ = 120

Allegro



Trombone 1

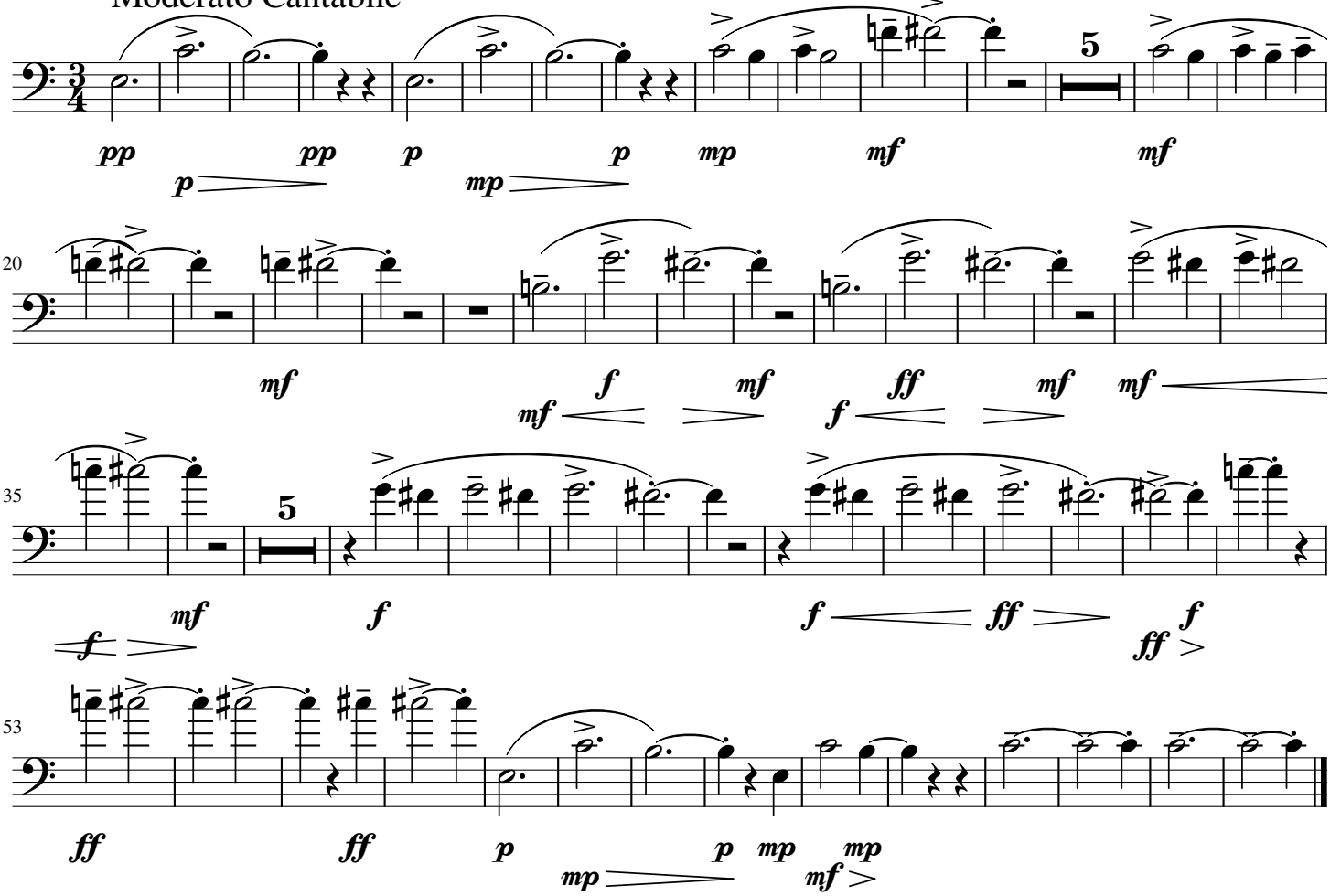
Piece for Computer and 4 Tromboni

Death on the Border - III (Yearning)

Ali Riza SARAL

♩ = 108

Moderato Cantabile



Trombone 2

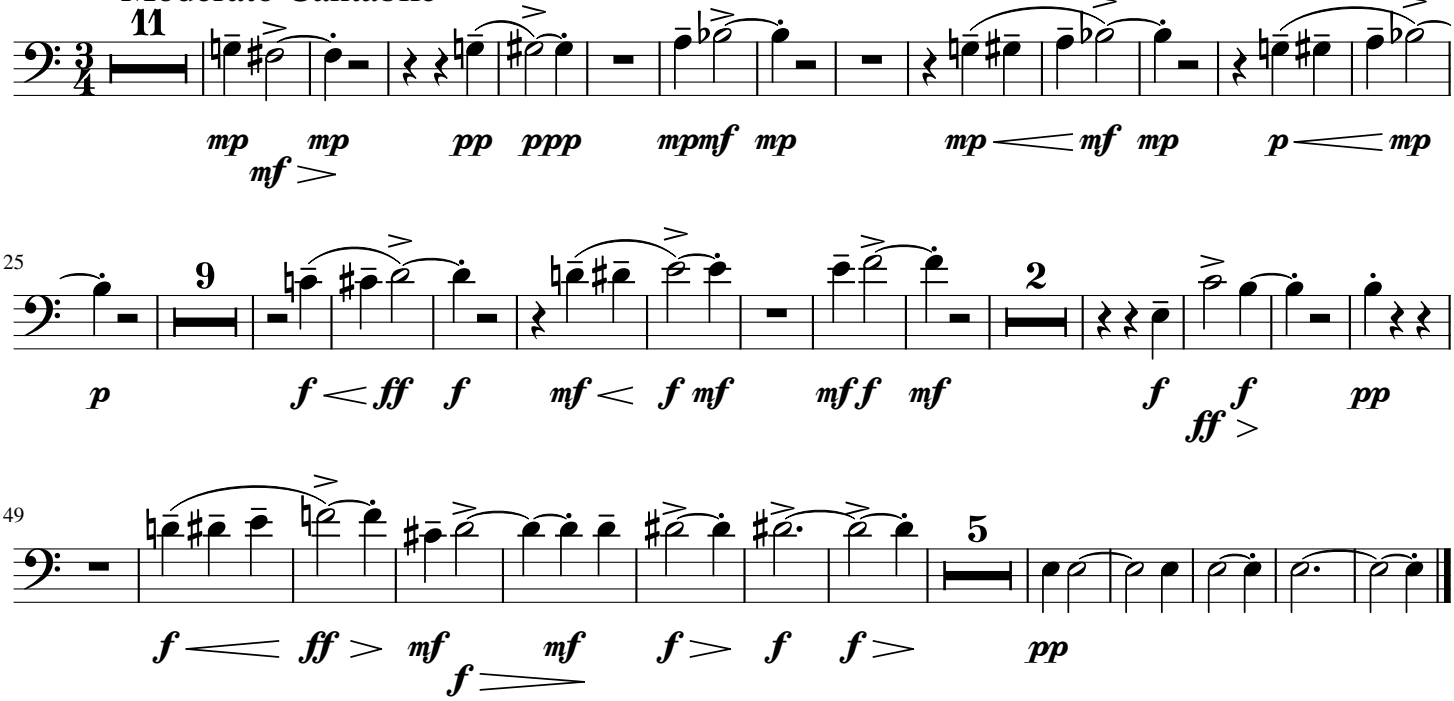
Piece for Computer and 4 Tromboni

Death on the Border - III (Yearning)

Ali Riza SARAL

♩ = 108

Moderato Cantabile



Trombone 3

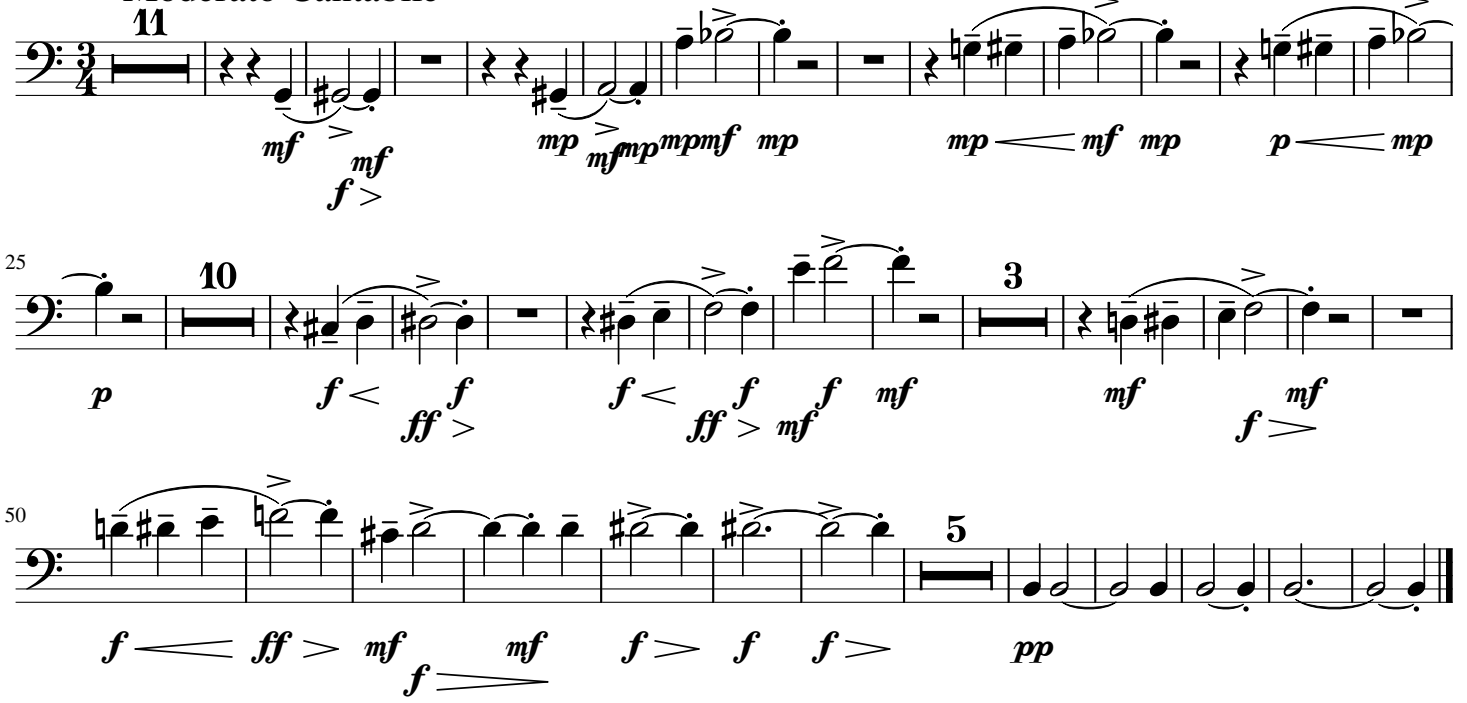
Piece for Computer and 4 Tromboni

Death on the Border - III (Yearning)

Ali Riza SARAL

♩ = 108

Moderato Cantabile

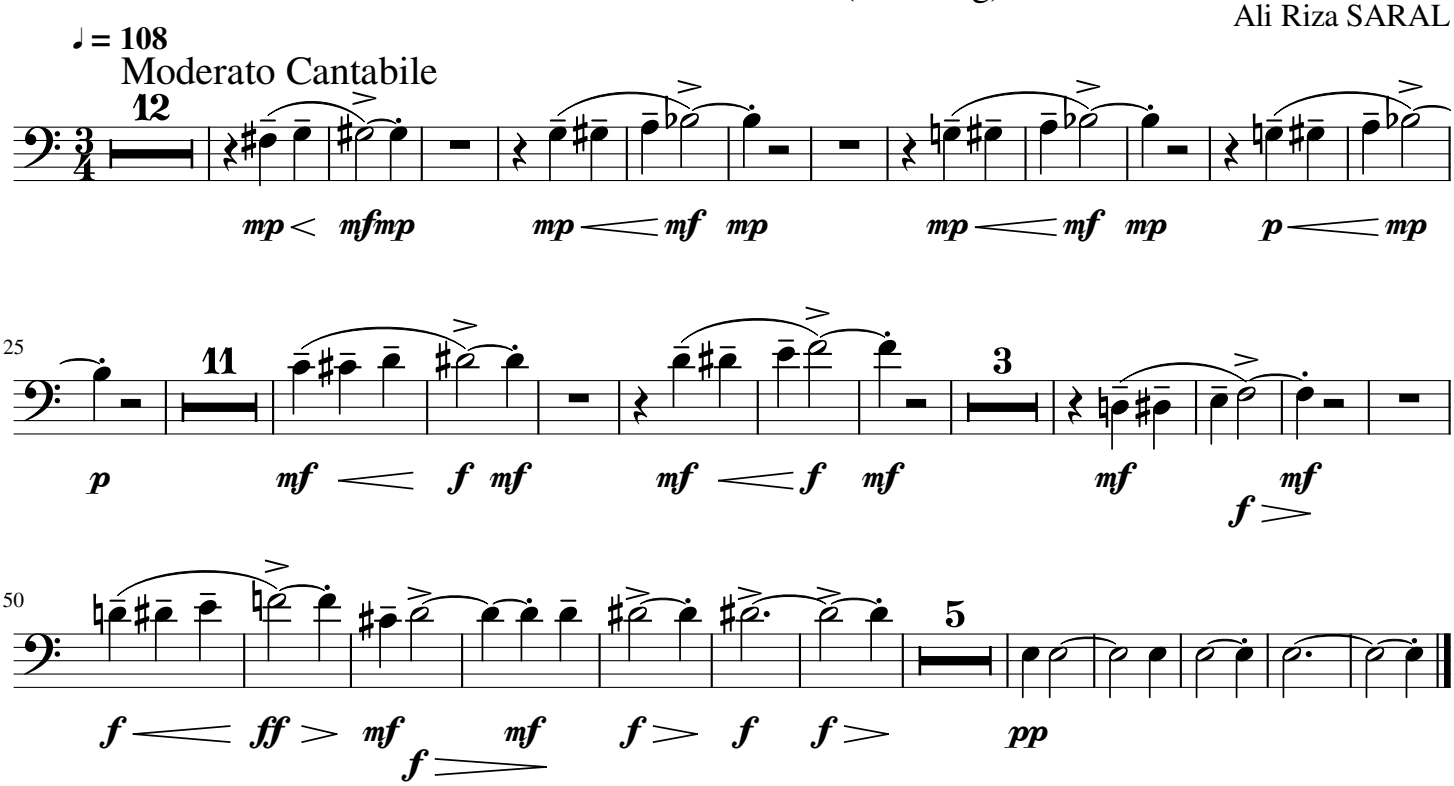


Trombone 4

Piece for Computer and 4 Tromboni

Death on the Border - III (Yearning)

Ali Riza SARAL

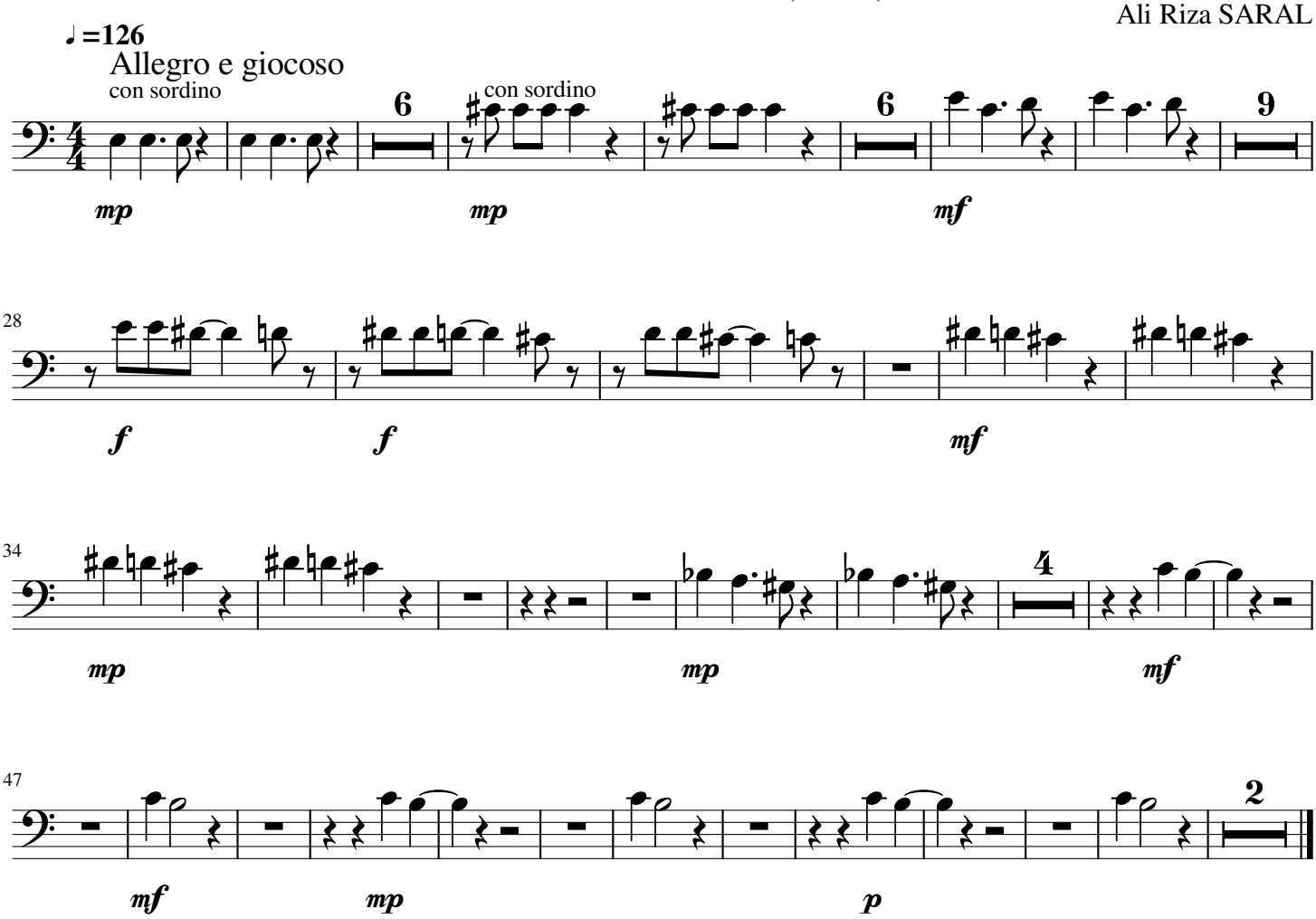


Trombone 1

Piece for Computer and 4 Tromboni

Death on the Border - IV (Ritual)

Ali Riza SARAL



Trombone 2

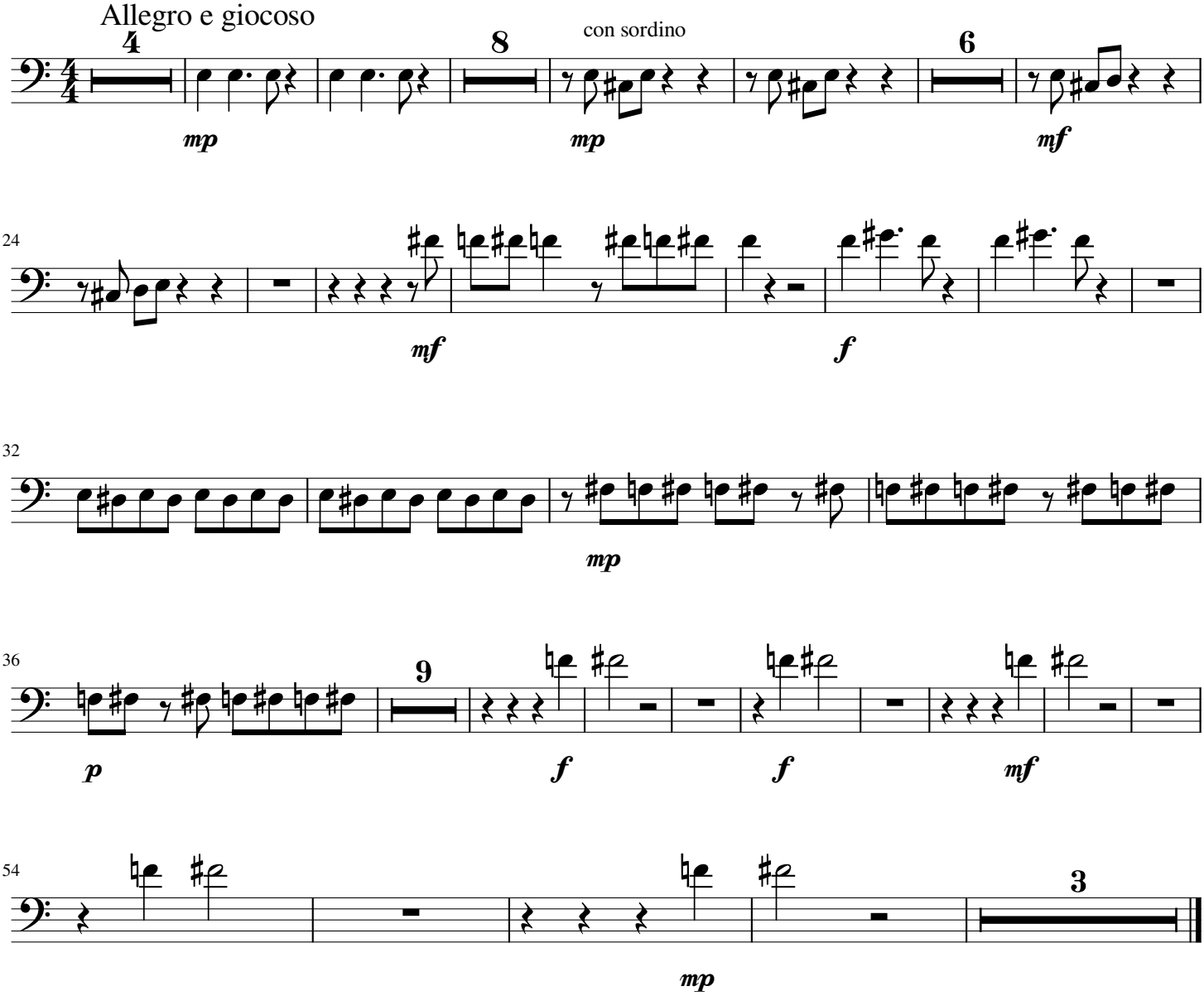
Piece for Computer and 4 Tromboni

Death on the Border - IV (Ritual)

Ali Riza SARAL

♩=126 con sordino

Allegro e giocoso



Trombone 3

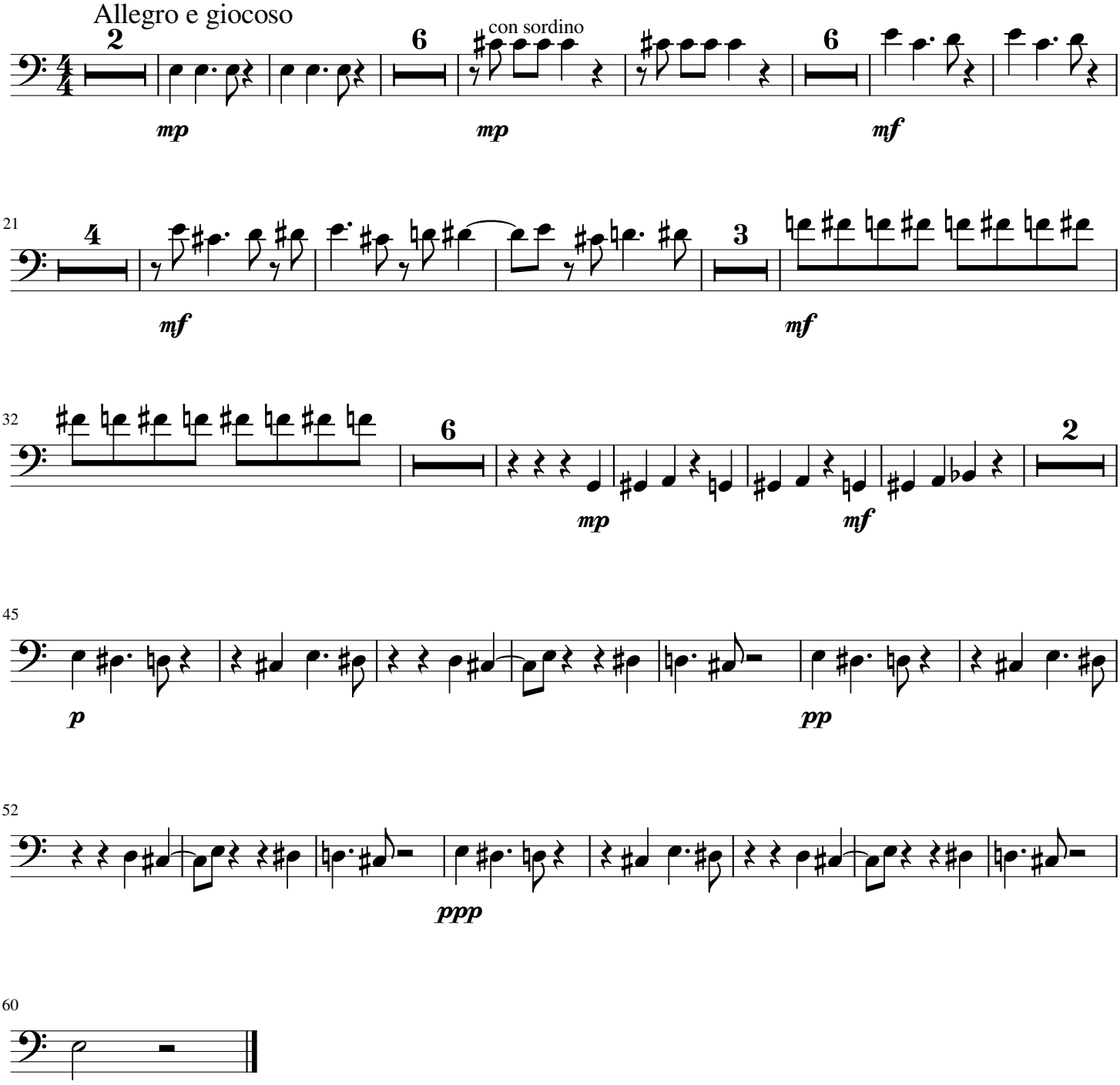
Piece for Computer and 4 Tromboni

Death on the Border - IV (Ritual)

Ali Riza SARAL

♩=126 con sordino

Allegro e giocoso



Trombone 4

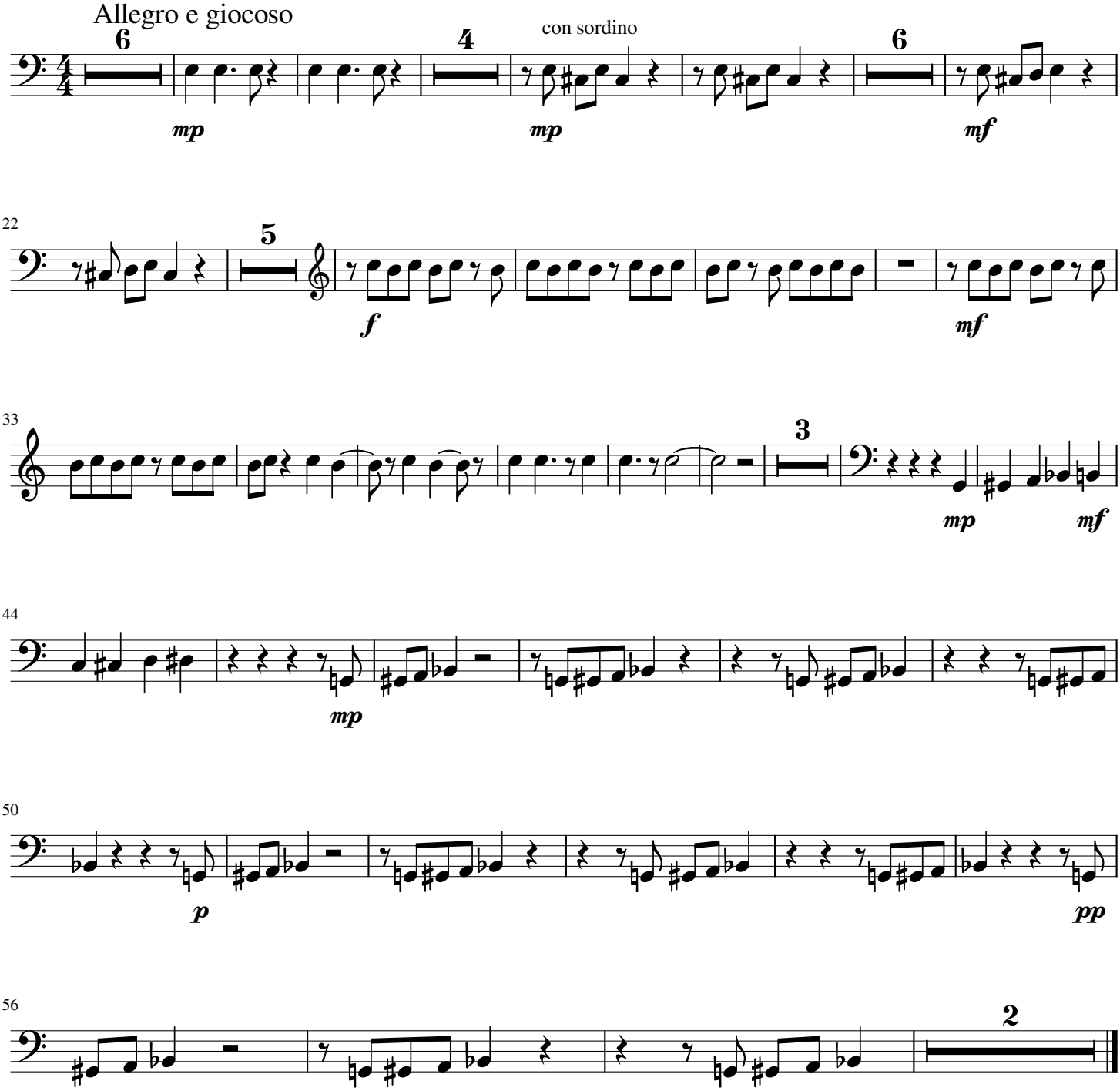
Piece for Computer and 4 Tromboni

Death on the Border - IV (Ritual)

Ali Riza SARAL

♩=126 con sordino

Allegro e giocoso

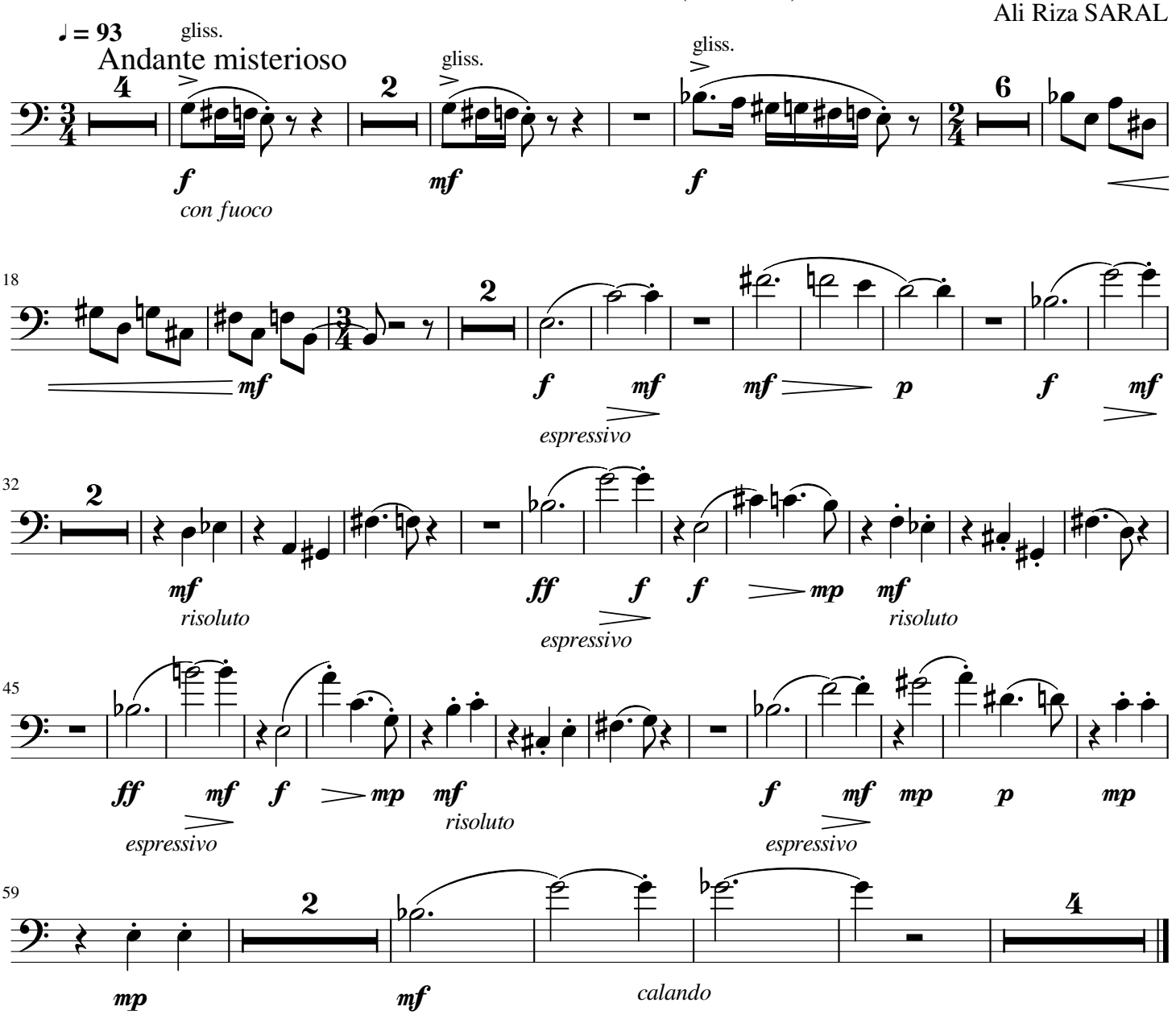


Trombone 1

Piece for Computer and 4 Tromboni

Death on the Border - V (Oblation)

Ali Riza SARAL



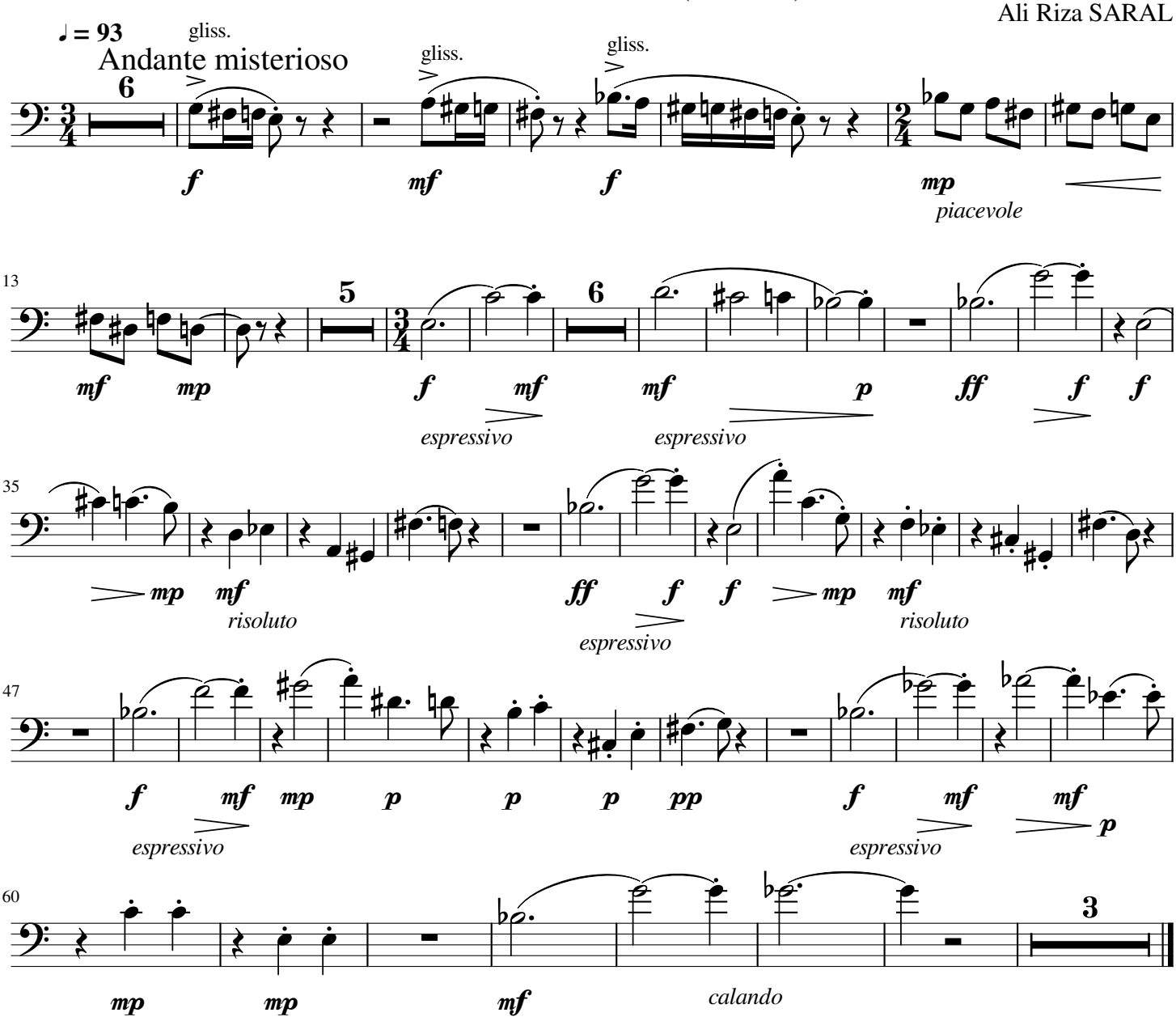
Trombone 2 Piece for Computer and 4 Tromboni

Death on the Border - V (Oblation)

Ali Riza SARAL

♩ = 93

Andante misterioso



Trombone 3

Piece for Computer and 4 Tromboni

Death on the Border - V (Oblation)

Ali Riza SARAL

♩ = 93

Andante misterioso

gliss.

gliss.

gliss.

piacevole

risoluto

tenuto

risoluto

espressivo

risoluto

espressivo

risoluto

espressivo

espressivo

calando

Trombone 4

Piece for Computer and 4 Tromboni

Death on the Border - V (Oblation)

Ali Riza SARAL

♩ = 93

Andante misterioso

6

gliss.

f

gliss.

f

13

3

mp *piacevole* *mf* *mp*

p *tenuto*

mf *risoluto*

25

2

mp *tenuto*

decresc.

ff *espressivo* *f* *f*

37

mp *mf* *risoluto*

ff *espressivo* *f* *f* *mp* *mf* *risoluto*

48

f *espressivo* *mf* *mp* *p* *p* *p* *pp* *f* *espressivo* *mf*

61

3

mf *p*

mf

calando